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THE

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CONDUCTED BY

G. C. CHAMPION, F.Z.S.

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E. SAUNDERS, F.R.S.

W. W. FOWLER, D.Sc., M.A., F.L.S. G. T. PORRITT, F.L.S.

J. J. WALKER, M.A., R.N., F.L.S.

LORD WALSHINGHAM, M.A., LL.D., F.R.S., &c.

SECOND SERIES—VOL. XVI.

[VOL. XLI.]

I said that "all the years invent ;
Each month is various to present
The world with some development."

Tennyson—"The Two Voices."

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Insects

Obituary.

CHARLES GOLDING BARRETT.

Following all too closely on the demise of our late much-regretted Editor-in-Chief, comes the news of the death of our greatly valued Colleague, C. G. BARRETT, which took place on December 11th, 1904, after a somewhat prolonged period of failing health, at the age of 68 years.

This brief announcement, which we ask our readers to accept until a full obituary notice can be given in our next No., will, we feel assured, be received with sincere regret by all British Entomologists, and especially by the students of the Order *Lepidoptera*, to whom Mr. Barrett's name is as a "household word." His fellow Editors deeply regret the necessity of commencing the new volume of this Magazine with the announcement of so sad a loss to their number.

THE

ENTOMOLOGIST'S MONTHLY MAGAZINE :

SECOND SERIES—VOL. XVI.

[VOLUME XLI.]

DRAGON-FLY HUNTING IN EASTERN SWITZERLAND.

BY KENNETH J. MORTON, F.E.S.

It is now a good many years since the interesting account of the *Odonata* of Switzerland by Dr. Fr. Ris* came into my hands, and first made me alive to the great attractions of Eastern Switzerland, and especially of the Zürich District, as one of the finest dragon-fly localities in Europe. In the interval Dr. Ris has himself become one of my most valued correspondents, and the beautiful series of Swiss *Neuroptera* sent by him from time to time form quite an outstanding feature of my collection, both with regard to the interest which they possess and also on account of their perfect preservation.

Having never seen Eastern Switzerland, I resolved to go there this summer, when I hoped to have not only the pleasure of making the personal acquaintance of Dr. Ris, but also to see for myself, under his experienced guidance, what could be done in the way of dragon-fly hunting in the "Züricher gebiet," now famous in the records of *Odonate* literature.

Leaving Edinburgh on the forenoon of July 1st, accompanied by my wife, we travelled direct to Zürich, arriving there late at night on the 2nd. Early next morning communication was established by means of a somewhat refractory telephone, and by the middle of the day Dr. Ris joined us, having travelled from his home at Rheinau, a distance of 26 miles, to meet us. After consideration it was decided that Dr. Ris and I should go to Robenhausen to look for *Nehalennia speciosum*, Charp., a species that I had never seen alive, and the smallest of European dragon-flies. Two or three localities were available, but Robenhausen was selected as the one in which it was likely

* Die Schweizerischen Libellen, 1885.

to be found most easily and most abundantly. Taking train to Aathal, a distance of some $15\frac{1}{2}$ miles from Zürich, a short walk brought us to the peaty and swampy tract connected with the Pfäffikon See, the desired locality. It required no experienced eye to know that we were on good dragon-fly ground, for the insects themselves soon appeared. One of the first to attract attention was a big *Æschna*, pronounced at once by Dr. Ris to be *Æ. isoseeles*, and very soon I had the pleasure of making the capture of this fine species which so few British collectors have taken. I feared that it might be over, but it proved to be not uncommon in one or two other localities, although mostly rather worn. A very interesting species, it is not equal to *grandis* in appearance or dash when on the wing. Many of the commoner species put in an appearance: *Anax imperator* occupied several stations; *Orthetrum cancellatum* was flying about, settling from time to time on drying peat, but wild as usual and most difficult to catch. There were also odd examples of *Libellula quadrimaculata* and *Sympetrum scoticum*, together with hosts of the Agrions, such as *A. pulchellum*, *E. cyathigerum*, *I. elegans* and *E. najas*. *Agrion hastulatum* also occurs here, but only one was taken by Dr. Ris. So far, however, the primary object of our search had not been seen, but at last in a wet place much overgrown with rushes and *Equisetum*, Dr. Ris found one—the daintest little thing imaginable, in bronzed green and blue, with a big yellowish pterostigma, but so inconspicuous that it might easily have been overlooked. One or two more were found, but it was evident that we had not yet reached the head-quarters of the species. Further search brought us to a place where the insect was more abundant, and while I simply collected, Dr. Ris made some interesting observations on the colours of the ♀ and believes that the same dimorphism exists in this species as in *Ischnura*. This subject will, no doubt, receive full explanation from himself. After we had dealt with *N. speciosum*, we had little time left for other species, and as the day was already well advanced we soon afterwards made our way to Wetzikon whence Dr. Ris returned to Rheinan and I to Zürich, both of us well pleased with our first afternoon's work.

Next day we arranged to devote entirely to the Metmenhasler See, distant by rail about an hour from Zürich. The special attraction was *Anax parthenope*, a magnificent species which, as far as the Zürich district is concerned, has made its head-quarters at this little lake. In order to lose no opportunity of securing the species, we left Zürich before 8 o'clock in the morning, joining Dr. Ris at Oberglatt.

Descending at Niederhasli, a few minutes' walk brought us to our hunting ground. It was still too early to look for much, but after our first inspection of the lake, we were disconcerted by the appearance of the weather—thunder in the distance, and more than threatenings of rain made us think seriously of seeking shelter, and also of the possibility of our having to give up the chase. However, the storm passed off and we returned once more to the lake. Just where we left the road at a little stream, *Cylopteryx splendens* was found, and in the same neighbourhood a few *Orthetrum cærulescens* were darting about. About the marshy margins of the stream *Pyrrosoma tenellum* occurred in a very restricted area, in accordance with its usual habit in Switzerland where Dr. Ris says he has always found it to be very local. Like many of the small Swiss lakes the Metmenhasler See is approached through a peaty marshy tract (more or less distinct from the lake proper), with ponds filled with water-lilies and *Utricularia*. These are the special haunts of *Leucorrhinia*, and one or two *L. albifrons* were noted, including one which had just emerged. These ponds were also frequented by *Erythromma najas* which received special attention in the hope that perhaps *E. viridulum*, a species discovered here by Dr. Ris a good many years ago, might also appear; we were now evidently too early for it. The commoner *Agrionidæ* were as before strongly represented. Among the larger species, *Æ. isosceles* again appeared, *Anax imperator* was more or less common, while *Cordulia ænea*, *Gomphus pulchellus* and a single ♀ *Sympetrum fonscolombii* were also observed. But *Anax parthenope* was so long in appearing that Dr. Ris began to doubt whether the seventeen years which had elapsed since he met with the insect, in all the glory of a dominant species, had not seen an important change in fauna of the lake involving the disappearance of its most distinguished member. It was well on to mid-day before its presence was established, and even then they were dashing about wildly and impossible of approach. At last a ♂ was secured, and about the same time my wife caught a fine pair. They frequented almost exclusively the lake proper, and could be distinguished easily from the other *Anax* by the darker abdomen with bright blue base. Further attempts to capture more proved futile at the time, so we stopped operations and went on to the village. Returning to the lake in the afternoon we found their demeanour altered. A gentle breeze was blowing up the lake, and instead of flying madly about, they now faced the wind poising on rapidly vibrating wing—striking objects with their brilliant blue basal band distinctly visible in the bright sunshine. A favourite position

was just on the landward side of the reed girdle ; after poising here for a short interval they would dart rapidly forward a short distance, this movement being repeated two or three times until they were just beyond the line of the reeds over the open surface of the water ; then a short flight would bring them back to the outward line, where by careful stalking they might sometimes be secured. During the afternoon flight four more were obtained. I could not make out any particular object in this flight ; they did not seem to be feeding. It was certainly a splendid manifestation of power. Few of the examples taken were in perfect order, but in the chase of *Anax parthenope* we had enjoyed one of the most exciting forms of Entomological sport.

On the afternoon of the 5th an excursion to the Trichtenhauser-tobel on the Zürichberg, proved, from the point of view of dragon-fly collecting, a failure, the sun having become obscured soon after we started. *Cordulegaster bidentatus* was the species we had in view ; it was discovered here by Dr. Ris and had been taken by him this year two or three weeks earlier. We were probably too late for it and the weather was unpropitious ; in any case we did not see it, and the dragon flies observed were all more or less common species. At a tiny clear pond a multitude of nymph-skins of *Æschna cyanea* were noticed with two imagoes that had not yet taken flight. It is not surprising in view of the *Æschnid* population of the pond that *Ischnura pumilio*, which formerly occurred here, appears no longer to exist. Although we had little to show for the afternoon's work, this fine entomological locality, almost within the city of Zürich, was well worthy of a visit.

Little was done on the 6th, and in the afternoon we proceeded to Rheinau to spend a few days with Dr. Ris. Here field work was pleasantly alternated with the examination of Dr. Ris' beautiful collections of *Neuroptera*.

The dragon-fly fauna of the Rhine, here a grand stream, is naturally not an extensive one. The most interesting species is *Onychogomphus uncatus*, an insect of southern distribution. It is common between Rheinau and Ellikon, and was just appearing when we were there. Along with it, but sparingly, *Onychogomphus forcipatus* occurred. *Calopteryx virgo*, *C. splendens*, *Platynemis pennipes*, and *Enallagma cyathigerum* are all found at or about the river. Dr. Ris has also found once a ♂ of *Gomphus simillimus*, but he regards it in the light of a wanderer.

(To be continued).

THE OCCURRENCE IN HEREFORDSHIRE OF *CALLIMYIA*
ELEGANTULA, FALL., AND *AGATHOMYIA* *BOREELLA*, ZETT.

BY J. H. WOOD, M.B.

The *Platypezidæ* are remarkably well represented in Herefordshire, for with the one exception of *Agathomyia collini*, Verr., the other British species are all to be found in this out-of-the-way corner of the kingdom. It may be remembered that quite recently I introduced (*Ent. Mo. Mag.*, vol. xiv, p. 271), *Agathomyia viduella* as a British insect, and I may as well say that it has turned up again this year, though in very sparing numbers; whilst Mr. Verrall tells me he has received a male from Scotland, taken by Col. Yerbury at Aviemore, on the 24th of last June. Now I am able to add two other species of the family to our Lists.

Callimya elegantula, Fall.—At first Mr. Verrall was in much doubt about the correctness of his identification of this insect, but that doubt is now reduced, in his own words, to a “modicum.” My two examples are both females, taken—the one at Coldborough Park, May 23rd, 1904, the other at The Black Mountains, June 24th, 1904. Coldborough Park is a large low-lying wood on the high road between Ledbury and Ross, the precise spot where the insect was captured being a boggy and overgrown “soak.” The other locality was a deep, rocky lane at the foot of the mountain, opposite Longtown; a little stream runs down one side, keeping it cool and moist, and the banks are overgrown in places with a luxuriant vegetation. The two places being 20 miles apart in an east and west direction, the insect must be widely distributed, and will doubtless turn up elsewhere in the West and North.

Remarkable for beauty as the females of *Callimya* are, the palm must I think be given, because of the richness of its abdominal markings, to *elegantula*. It is about the size of our other two species, and may be distinguished from either by the distinctly elongated 3rd joint of the antennæ; by the character of the thorax which, instead of being velvety-black with silvery patches, is dark grey, having the silvery patches represented by a much lighter grey, and marked down the middle by three dark lines which are fairly conspicuous anteriorly, but blend with the ground colour behind; and by the possession of three silvery bands at equal intervals on the abdomen, the first, which is somewhat tinged with yellow, occupies the 1st and 2nd segments, the middle one the 4th, and the last the end segment, the middle band is divided by a narrow dorsal line, and indications of this line are

shown by a brown spot or two on the basal band. The halteres are orange, with a dusky tinge at the upper corner. The striated thorax (not noticed apparently by any author) is a most unusual feature either for a *Callimya* or an *Agathomyia*, though it is common enough among the females of *Platypeza*. The presence of distinct spines on the subcostal vein and the character of the abdominal markings leave little doubt, in spite of the somewhat elongated antennæ, and even in the absence of the male, that it is a true *Callimya*.

Mr. Verrall observes: "Nobody seems to have taken it except Fallen, Zetterstedt, and his correspondents Holmgren, Dahlbom, and Wahlberg, and perhaps Bonsdorff and his Finnish correspondents."

Agathomyia boreella, Ztt.—Here Mr. Verrall had no hesitation over the name. I was able to submit for his inspection nearly a dozen examples, consisting of both sexes in about equal numbers, and all taken this year in a boggy wood on Shobdon Marsh, between the dates July 9th and August 18th. It is a small species, the size of *A. antennata*, and of the usual velvety-black colour on the thorax and abdomen; the female, apart from the characters associated with sex, only differing from the male in having the legs not so dark, and the two first segments of the abdomen a dark orange. No spines are present on the subcostal vein, but the 3rd joint of the antennæ is not elongated, being to my eye as short as in *C. amæna* or *C. speciosa*, and therefore much shorter than in *C. elegantula*. The halteres are black, with their stalks somewhat pale in the female, and the legs blackish. The male is further characterized by the usual bristle on the middle tibiæ being weak, by the presence of three bristles underneath the corresponding metatarsi, extending in a line from the base to about the middle, and by the marked enlargement of the hind legs which are as dilated as in *Callimya*. Any one meeting with the insect should have no difficulty in recognising it—the male, by the association of the *Callimya*-like antennæ with a spineless subcostal vein, by the clumpy hind legs and the bristles underneath the middle metatarsi; and the female by the same association of antennæ and vein, and by the orange base of the abdomen. This orange portion varies somewhat in extent. There is always present a narrow black line between it and the thorax, which looks to me like a short and unrecognised segment, and this black line occasionally sends a broad prolongation on to the back of what is called the 1st segment.

The short antennæ, and strongly dilated hind legs in the male, might suggest that the insect should be referred to *Callimya*, but the

spineless subcostal vein, the small size of the anal cell, and the bristles on the middle metatarsi of the male, as well as the general facies, combine to show that it is really an *Agathomyia*.

Shobdon Marsh lies in the valley of the Arrow, and close to Pembridge, one of the quaintest of Herefordshire villages, with its old timbered houses and raised footways. The marsh has been partially drained, but the wood is still very soft and boggy, especially at one end where several strong springs break out. It gave me this year some other very good things besides the *Agathomyia*, but it is a cruel place to collect in, from the swarms of *Culex annulatus*, or an allied species that frequent it, and unless I had, before entering, anointed face, hands, and even legs with eucalyptus oil, into which some carbolic acid had been dropped, I doubt I could have faced the two or three hours I usually spent there. Among these good things I may mention *Actia frontalis*, and another interesting Tachinid or two, a female *Pipunculus* belonging to the *zonatus* group, and remarkable for having three or four long bristles at the bend of the hind tibiae. Mr. Verrall suggests it may possibly be Becker's *arimosus*, the female of which is unknown; *Mydæa longitarsis* (one ♂), and *Homalomyia difficilis* (two ♂♂), *Acidia lychnidis*, and last, but not least, *Palloptera latibilis* (three ♂♂). I tried in vain for *Aciura rotundiventris*, of which Col. Yerbury swept one here in 1902, but I have good hopes that on the occasion of my last visit I discovered the clue to its food-plant, so one day I may succeed in breeding it.

Tarrington: October, 1904.

NOTE BY G. H. VERRALL.

Dr. J. H. Wood's captures in *Platypezidae* are very interesting and very instructive. I still have great doubts about the name of the one he introduces as *C. elegantula*, because Fallén in his original description says, "Abdominis segmenta 1 et 2 lutea, pellucida, 3 et 4 atra (immaculata); anus albicans," but afterwards accepted Zetterstedt's description, which in 1844 was developed into "abdominis segmentis 2: do toto 3: tiorque lateribus, fulvopellucidis, ano toto argenteo;" Meigen's description of a specimen from Sweden says, "Hinterleib: erster Ring schwarz; zweiter und dritter lebhaft rothgelb, durchscheinend; die beiden folgenden schwarz und der After aschgrau," and none of the authors call the thorax striped. The differences require more material to work upon before they can be removed, but it may be said with fair confidence that Dr. Wood's specimens do not belong to any other described *Callimyia*. The somewhat elongated conical third joint of the antennæ compels a slight modification of that generic character of *Callimyia*.

Neither *C. elegantula*, Fallén, nor *A. boreella*, Zett., have ever previously been recorded out of Scandinavia, and I believe no record of their capture have been given since 1865. Surely Dr. Wood will now catch *C. Dahlbomi*, Zett., which has a fulvous scutellum, and let us clear up its generic position. I may mention that I possess indications of two more British species of *Callimyia*, but not with sufficient certainty for their introduction at present.

Dr. Wood has omitted to mention that *Homalomyia difficilis*, Stein, and *Palloptera letabilis*, Loew, are both additions to the British lists, and if *Actia frontalis* is intended for *Thryptocera frontalis*, Macquart—I believe that to be also an addition.

A LARGE COMMUNITY OF *VESPA VULGARIS*,

BY THE REV. G. A. CRAWSHAY, M.A.

Mr. Saunders has invited me to write a note upon a community of *Vespa vulgaris*, lately taken by myself, numbering 4957—5207 individuals. The former figure represents the number of wasps already emerged from the cells, found in the nest when it was dug out, and afterwards carefully counted. The latter takes into account an additional 250, at which I estimate those which were not recovered for counting.

It will be observed that either figure is considerably in excess of F. Smith's estimate of 2590—2690 for a large community, while it in no way approaches to Reaumur's 30,000 for the same.

It seems difficult to account for the great difference in these numbers. Would it not be interesting to know the experience of others respecting the comparative numerical strength of communities of the social wasps?

With the little experience that I have I hesitate to express an opinion on the subject, but I am inclined to think that F. Smith's estimate will hold good in any ordinary English summer of normal conditions of weather, and that only unusually favourable conditions of temperature, &c., would produce any appreciably larger number in a community.

The community in question I destroyed on the night of September 20th, in the faint hope of finding the beetle parasite, *Metæcus paradoxus*, of which my brother, Mr. L. R. Crawshay, had beaten one specimen from a birch bush in the neighbourhood in the autumn of 1902. It was the strongest of six communities which have come under my observation this autumn. On digging out the nest on the following morning, the walls, as they flaked away, disclosed such a mass of wasps falling away with them, that I resolved to keep and count them.

Accordingly I removed in a sack that part of the earth thrown up which contained most of the wasps, but at least 200 more must have been left behind in the remainder of the earth, which was too bulky conveniently to remove. To these I add about 50, which had assembled round the nest in the morning, and which were not in it when it was destroyed, making a total of 5207.

This would appear to be an unusually large community. How can its numbers be accounted for?

I suppose we may conclude that the past summer has been more than ordinarily calculated to hasten the development of both larvæ and pupæ of the successive broods occupying the cells. It would appear from the number of cells occupied by healthy larvæ and pupæ at the time of taking the nest, that, assuming a continuation of sufficiently warm weather, the community would soon largely have increased its number, for workers were still in process of emerging, together with small males and a large number of females. I counted one layer of females' cells, sealed and filled throughout with larvæ and pupæ, with the exception of some twelve empty cells, numbering over 1100. Another larger layer of smaller cells containing males and workers mixed, many in process of emerging, I should estimate at 1500. The caps of these cells I removed in search of imagines of *Metæcus*. By October 6th I had counted the whole contents of the nest, which were as follows:—

(1). Wasps found dead in the nest—	
Males	1107
Females	551
Workers	3299
(2). Enclosed in sealed cells (imagines, pupæ, and larvæ)—	
Males and workers mixed	2280
Females	2594
(3). In open cells, larvæ in all stages	1201
(4). Eggs, in cells of males ; females and workers	314
(5). <i>Metæcus paradoxus</i> (imagines, pupæ and one larva)	24

Total occupants counted = 11370

Adding to this the following estimated numbers—

(1). Dead wasps not gathered up	250
(2). Emerged from cells, and flown before the counting of pupæ and larvæ was completed	150
(3). Pupæ and larvæ lost	300

Total occupants estimated = 12070

The nest was situated on the border of a large wood three quarters of a mile from a village, the cavity in the earth containing it was clean and healthy, there being no damp putrid deposit at the bottom. The cells did not appear to be more numerous than those of other completed nests, one of which, close by, I counted, numbering 7000 cells.

It would be interesting to know to what extent the cells served for a second brood, whether the cells of males and females, as well as those of the workers, were re-occupied. The fact that eggs and small larvæ were present in an upper layer of females' cells, from which apparently the early females had emerged, while the two lower layers were completely occupied by imagines, pupæ and spun larvæ, would seem to point to the conclusion that the queen is capable of using not only the cells vacated by workers, but any available ones for a second brood, whether there is a sufficiently high temperature to hatch out these late ones or not.

Leighton Buzzard :

December, 1904.

LEPIDOPTERA TAKEN IN A MOTH TRAP AT DITCHINGHAM,
SUFFOLK.

BY MRS. H. E. MANN.

At the suggestion of Mr. C. G. Barrett I send a few particulars of a moth trap which I have been working with some success since June, 1901. The trap, which we have named the "Mandair," is similar in construction to the American moth trap mentioned by Dr. Knaggs in his "Lepidopterist's Guide," but with several alterations in the angles of the glasses, &c. In the plan and alteration I have been greatly assisted by Sir F. Adair, F.E.S.

The special points of the "Mandair" are—Insects, when they have once entered the trap, do not escape; and as no stupefying drawer is used, all specimens that are not wanted can be released uninjured. The trap is fitted into a grooved stand about twelve feet high, and is raised by means of pulleys to the required height. Most of the "Micros," as well as many "Macros," mentioned in the list below were taken about six feet from the ground, but for *Notodontidæ* I think the trap should be raised as high as possible.

It stands facing about north-west, with a background of foliage,

and overlooking a small garden, which has been planted with various flowers for the special purpose of attracting moths. Beyond is a stretch of marsh land, and the river Waveney dividing the counties of Norfolk and Suffolk is close by. Doubtless the situation is very favourable to insect life, for in the summer months there are often eighty to one hundred specimens in the trap, and sometimes many more. The list which I append (omitting the very common species) is somewhat lengthy, but in order to gauge the possibilities of the trap, I have kept as far as possible a register of all the species taken, with the exception of the *Tineina*, which I did not begin to collect until last year.

List of Macro-Lepidoptera taken in Trap since June, 1901.

Hepialus sylvinus.	Charæas graminis.	Nœnia typica.
Nola cucullatella.	Heliophobus popularis.	Amphipyra tragopogonis.
Nudaria senex.	cespitis.	Hydrilla arcuosa.
mundana.	Neuria saponariæ.	Caradrina morpheus.
Calliginia miniata.	Aplecta advena.	alsines.
Lithosia complanula.	Hadena thalassina.	blanda.
griseola.	dentina.	Grammesia trilinea.
v. stramineola.	suasa.	Dyschorista ypsilon.
Lasiocampa quercûs.	Hecatera serena	Calyptia trapezina.
Odonestis potatoria.	Dianthœcia carpophaga.	Tethea retusa.
Gastropacha quereifolia.	cucubali.	Orthosia pistaciæ.
Drepana falcataria.	capsineola.	litura.
Cilix spinula.	conspersa.	lunosa.
Cerura furcula.	Cleoceris viminalis.	lota.
Lophopteryx camclina.	Polia flavocincta.	Cerastis vaccinii.
Pterostoma palpina.	Miselia oxyacanthæ.	ligula.
Acronycta tridens.	Cerigo cytherea.	Xylocampa lithoriza.
Agrotis puta.	Xylophasía lithoxylea.	Cucullia umbratica.
nigricans.	Apamea basilinea.	Plusia chrysis.
tritici.	Miana strigilis.	iota.
aquilina.	fasciuncula.	Habrostola urticæ.
Axylia putris.	Hydræcia nictitans.	Gonopterya libatrix.
Triphæna janthina.	micacea.	Herminia tarsipennalis.
Noctua aggur.	Gortyna flavago.	grisealis.
triangulum.	Tapinostola fulva.	Hypena proboscidalis.
c-nigrum.	Calamia phragmitidis.	Rivula sericealis.
festiva.	Leucania comma.	Ourapteryx sambucata.
baja.	conigera.	Cabera exanthemaria.
rubi.	lithargyria.	taminata.
umbrosa.	Tæniocampa gothica.	Halia vaularia.
pecta.	Rusina tenebrosa.	Strenia clathrata.

Odontoptera bidentata.	Acidalia incanaria.	Cidaria dotata.
Ennomos alniaria.	immutata.	fulvata.
fuscantaria.	aversata.	pyraliata.
erosaria.	Timadra emutaria.	testata.
Crocallis elinguaris.	imitaria.	Pelurga comitata.
Selenia bilunaria.	Bradyepetes amataria.	Phibalapteryx fluviana.
v. juliaria.	Ania emarginata.	lignata.
lunaria.	Melanippe rivata.	vitalbata
Pericallia syringaria.	montanata.	Hypsipetes elutata.
Epione apiciaria.	Melanthia rubiginata.	Oporabia dilutata.
Metrocampa margaritata.	ocellata.	Eubolia cervinata.
Cleora lichenaria.	albicillata.	Eupithecia linariata.
Boarmia repandata.	Anticlea rubidata.	centaureata.
rhomboidaria.	Coremia ferrugata.	succenturiata.
Ligdia adustata.	unidentaria.	subfulvata.
Geometra papilionaria.	quadrifasciaria.	irriguata.
Iodis vernaria.	pectinaria.	castigata.
lactearia.	didymata.	subnotata.
Hemithea strigata.	Asthena luteata.	absynthiata.
Ephyra omicronaria.	Emmelesia alchemillata.	minutata.
porata.	decolorata.	assimilata.
Acidalia bisetata.	unifasciata.	exiguata.
scutulata.	Cidaria miata.	valerianata.
dilutaria.	sagittata.	

List of Micro-Lepidoptera, June, 1901, to end of August, 1903.

Cledeobia angustalis.	Crambus falsellus.	Rhodophaea marmorea.
Aglossa pinguinalis.	pratellus.	suavella.
Pyralis glaucinalis.	paseucllus.	Aphomia sociella.
Pyrausta purpuralis.	perlellus.	Tortrix pyrastrana.
Herbula cespitalis.	selasellus.	xylosteara.
Cataclysta lemnalis.	tristellus.	heparana.
Paraponyx stratiotalis.	inquinatellus.	costana.
Hydrocampa nymphæalis.	genieuleus.	viridana.
Ebulea crocealis.	hortucllus.	adjunctana.
Scopula lutealis.	Chilo phragmitellus.	Dichelia grotiana.
ferrugalis	Schœnobius forficellus.	variegana.
Stenopteryx hybridalis.	mueronellus.	Peronea ferrugana.
Eudorea ambigualis.	Myelophila cribrella.	Teras contammanna.
cembrae.	Homœosoma nimbella.	Dietyopteryx loeflinginna.
dubitalis.	nebulella.	holmiana.
mercurella.	Ephestia elutella.	bergmanniana.
ulmella.	ficulella.	Penthina pruniana.
cratægella.	Rhodophaea formosa.	Spilonota laticiana.
pallida.	advenella.	dealbana.

Aspis udmanniana.	Capua favillaceana.	Catoptria scopoliana.
Orthotænia antiquana.	Phoxopteryx lundana.	fulvana.
striana	Grapholita trimaculana.	expallidana.
Cnephasia subjectana.	nævana.	Eupœcilia atricapitana.
virgaureana.	Pœdisca corticana.	degreyana.
alternana.	solandriana.	ciliella.
pascuana.	Catoptria cana.	Xanthosetia zœgana.

The following List of *Tineina* is only for 1903 ; previously I had not collected them.

Scardia cloacella.	Orthotænia sparganella.	Argyresthia gœdartella.
Tinea semifulvella.	Enicostoma lobelia.	curvella.
Nemophora schwarziella	Phibalocera quereana.	Coleophora fabriella.
Swammerdamia cæsiella.	Depressaria liturella.	Laverna ochraceella.
compella.	ciliella.	Elachista tæniatella.
Xyonomeuta	Gelechia lutulentella.	Platyptilius trigonodactylus.
vigintipunctatus.	ericetella.	Leioptilus microdactylus.
Anesychia decemguttella.	proximella.	

The list of *Macro-Lepidoptera* is compiled from the species taken in the trap from the time it was started, June, 1901, to the present date, September, 1904. The list of *Micros* (*Tineina* excepted) is for two years only, as the insects taken since last autumn have not yet been worked out. If the "Mandair" trap could be worked in *various* suitable localities I think collectors would find it useful. It must be borne in mind that my trap has always occupied the same position in our garden, and has been the means of collecting in rather more than three years quite one-third of the *Macros* recorded for Norfolk and Suffolk.

Ditchingham, Bungay :

September, 1904.

NOTE ON *LIBYTHERA GEOFFROYI NICEVILLEI*, OLLIFF.

BY G. A. WATERHOUSE.

As in the recent Monographs on the *Libytheidæ* the systematic position of the single species of *Libythea* at present known to occur in Australia has not been recognised, I have thought it well to bring together all the available references of this rare species.

In Trans. Ent. Soc. N. S. Wales, 1866, vol. i, p. 61, Sir William Macleay, referring to an exhibit of *Lepidoptera* from Cape York, drew attention to a specimen of *Libythea* as *L. myrrha*.

In a Catalogue of the described diurnal *Lepidoptera* of Australia, 1873, p. 18, Mr. Masters records *L. myrrha* from Cape York.

In "Australian Butterflies," 1889, the late Mr. Olliff gave a woodcut of a female under the name of *L. myrrha*.

In a Synonymical Catalogue of the *Rhopalocera* of Australia, 1891, p. 47, Mr. Miskin records *L. myrrha* from Cape York, Malayana, Burmah, India, and Ceylon.

In Proc. Linn. Soc. N. S. Wales, 1891, p. 28, the late Mr. Olliff described our species as *L. nicevillei*, from Cape York and Port Moresby, New Guinea. The late Mr. de Niceville had pointed out in a letter to Mr. Olliff that the figure given by him in "Australian Butterflies" was quite distinct from *L. myrrha* from India.

Fruhstorfer, Berlin Ent. Zeit., 1898, p. 170, in a list gives our species as *L. geoffroyi* (?) *nicevillei*.

In Vict. Nat., 1899, xvi, pp. 72-4, Mr. J. A. Kershaw considers our species synonymous with *L. geoffroyi*, recording it under that name from Herberton and New Guinea. He gives a description of a male from Australia.

In "Das Tierreich" and the "Genera Insectorum" (*Libytheidae*) Dr. Pagenstecher records our species as *L. myrrha nicevillei*.

In my "Catalogue of the *Rhopalocera* of Australia," 1903, p. 18, I record the species as *L. nicevillei*, Oll.

Having lately examined the type (♀) in the Australian Museum, Sydney, and compared it with Semper's figure (♀) of *L. antipoda* (= *L. geoffroyi philippina*), I have no doubt that it belongs to the *L. geoffroyi* group, especially as I have seen a male, which is violet-blue above, as is usual with the males of *L. geoffroyi*.

Our species will therefore be known as *Libythea geoffroyi nicevillei*, Olliff, and its range will be Cape York (in Aust. Museum), Herberton (Kershaw), and it is also taken at Cooktown.

Killara, Sydney, N.S.W. :

October 18th, 1904.

[I have taken this *Libythea* on Condillac and Cassini Islands, North-West Australia, in May, 1891.—J. J. W.]

ANOTHER NEW BRITISH LONGICORN (*CRIOCEPHALUS*
RUSTICUS, Dej.).

BY D. SHARP, M.A., F.R.S., AND T. GILBERT SMITH.

When Colonel Yerbury was looking for *Callicera yerburyi* he found a large beetle which is now in the collection at the British Museum. On examining this insect to-day we find it to be a fine female individual of *Criocephalus rusticus*, Dej.

As we are engaged on a paper as to the species of *Criocephalus*, it is not necessary at present to do more than record the discovery.

Colonel Yerbury may well be congratulated on finding at the same time two such interesting additions to the British Fauna.

Brockenhurst :

November 29th, 1904.

MALACHIUS BARNEVILLEI, PUTON, AN ADDITION TO THE
BRITISH LIST.

BY G. C. CHAMPION, F.Z.S.

Mr. H. J. Thouless, of Norwich, has recently sent me for determination three males and seven females of a *Malachius* captured by him on the sand hills at Hunstanton, Norfolk, on June 21st, 1899, in *Convolvulus*-flowers. They are very like *M. viridis* at first sight, and might easily be mistaken for the immaculate form of that species, but are really referable to *M. barnevillei*, Puton, the Norfolk specimens agreeing precisely with the full descriptions of that insect given by Mulsant (*Vésiculifères*, pp. 72-76) and Peyron (*Monographie des Malachiides*, pp. 55, 56). *M. barnevillei* forms the type of Mulsant's subgenus *Hypoptilus*, distinguished by the narrow transverse excavation at the apex of the elytra in the ♂, and the strongly developed membrane of the tarsal claws in both sexes. *M. viridis*, *M. bipustulatus*, and *M. æneus* belongs to *Malachius*, sensu stricto, in which the elytra are unimpressed at the apex in both ♂ and ♀; and our other British species, *M. marginellus*, to the subgenus *Clanoptilus*, Muls., which has the elytra bispinose and broadly and deeply excavate at the apex in the ♂. The ♀ of *M. barnevillei*, it is true, closely resembles the same sex of *M. viridis*, but it is easily distinguished by the flavous or testaceous colour of the anterior and intermediate tarsi, and of the front of the head, &c., in this respect being very similar to *M. margin-*

nellus. On the Continent *M. barnevillei* inhabits the Basses and Hautes Alps, the Pyrenees, &c., and its occurrence on the Norfolk coast was scarcely to be expected. *Ædemera virescens*, however, recorded last year from Central Norfolk, is a somewhat parallel case. A description of the *Malachius* is appended below.

MALACHIUS BARNEVILLEI, Puton.

Metallic-green, the mouth parts (the apical joint of the maxillary palpi excepted), the anterior portion of the head, the basal joints of the antennæ laterally and beneath, the anterior tarsi, the anterior tibiæ on the inner side towards the apex, a small spot at the apex of the anterior femora (and sometimes another on that of the intermediate pair), the intermediate tarsi in part, and the apical margin of each ventral segment, testaceous or flavous; the upper surface very finely pubescent and also thickly clothed with long, erect, blackish hairs. Tarsal claws very little longer than the membrane.

♂. Antennæ with joint 1 much thickened, and 2—9 more or less serrate, the latter flavous at the inner apical angle. Each elytron with a narrow transverse impression at the apex.

♀. Antennæ shorter and darker, the basal joint not dilated and the others very feebly serrate.

Horsell, Woking:

December 6th, 1901.

RHIZOTROGUS OCHRACEUS, Knoch, A GOOD SPECIES.

BY DR. NORMAN H. JOY, F.E.S.

While sweeping a grassy hill side near Streatley, Berks, at the end of last July, I captured a small cockchafer flying in the bright sunshine, and from this circumstance suspected it to be *Rhizotrogus ochraceus*, Knoch. On August 1st I again visited the spot, and found the beetle fairly plentiful. They were flying swiftly, never more than two feet above the highest grass, and occasionally circling round as if about to settle, which, however, I never saw one do. They took no notice of small scattered juniper and hawthorn bushes, which they passed (as *R. solstitialis*, L., would have done), nor were any flying round some beech trees about thirty yards away. They proved very hard to capture, as they were so difficult to see against the grass when one got close to them. I found the best plan was to stand at the bottom of the hill, where a beetle could be easily seen flying against

the light coloured tops of the high grass, but the objection to this was that it meant a dash up the slope for twenty or thirty yards, often only to lose sight of the insect when one got up to it. Considering it was something like 87° in the shade on the day in question this was most exhausting work. Eventually nine specimens were captured, but quite as many as this must have escaped after being sighted. On passing the hill side in the afternoon I did not see a single example, and the next afternoon I only saw two, so that probably the species is practically a morning flier.

On examining these specimens carefully I found they differed in several respects from *R. solstitialis*, and answered to Canon Fowler's somewhat meagre description of *R. ochraceus*. However, I had great difficulty in confirming this identification until Messrs. Donisthorpe and Chitty most kindly helped me, and I have now compared my insects with several foreign examples of *R. ochraceus* and one of Dr. Sharp's from Cornwall. All those captured by me have proved on dissection to be males. On the continent *R. ochraceus* is regarded as a variety of *R. solstitialis*, but I think the above description of its habits abundantly proves that this is not the case, even if the structural differences between the two forms were much less marked. It is true that several of the continental *Rhizotrogi*, like various species of *Geotrupes*, sometimes fly by day, as well as at dusk; but *R. solstitialis* is such a very common insect that this habit could hardly have been overlooked, it being almost always found flying, generally high up, round trees.

Structurally, *R. ochraceus* seems to be very constant, differing from *R. solstitialis* in the following particulars:—it is on an average distinctly smaller and less hairy, and has more slender legs; the elytra have no or a very few extremely short hairs on the disc, and are bordered with rather short stiff dark bristles, whereas in *R. solstitialis* they are clothed with scanty, long, light coloured pubescence, and are bordered with hairs of the same nature; the pygidium is finely punctured, but somewhat rough, instead of being strongly granulose, and is covered with much shorter pubescence than in *R. solstitialis*; the ♂ has the club of the antennæ only half the length of that of the same sex of *R. solstitialis*. It seems quite possible that we have a third species of the genus in Britain, as specimens in one or two collections standing under the name *R. ochraceus* do not appear to be correctly identified.

[The Welsh insect hitherto doing duty for *R. ochraceus* in British collections, so far as I can judge from a specimen (♂) given me by the late S. Stevens, agrees with those found by Dr. Joy in the form of the antennal club; but it differs from them in having the prothorax and elytra more hairy, and more densely punctured, and the pygidium granulate, as in *R. solstitialis*. So far as my experience goes, it is the males only of the various day-flying *Rhizotrogi* that are to be found on the wing in the hot sun, and these disappear soon after mid-day. Last summer, while in the Cantabrian Mountains, I met with two such species, both in profusion, and captured a large number of specimens of each of them, all apparently males.—G. C. C.]

Note on the larva of Cænonympha pamphilus.—I have a few of these larvæ feeding on a plant of *Festuca ovina* in a flower pot. One supposes they ought in feeding to go to the end of a leaf, and, beginning at the tip, to eat it down towards the base, and some may be seen to do so. More frequently, however, they begin to eat a leaf in the middle, letting a large terminal portion fall and be wasted. But some of them are less thoughtful even than these, and remind one of the humorous print in which a practical joker in cutting off the inn signboard sits on the end of it while he does so. These larvæ in beginning to eat in the middle of the leaf, rest on the terminal portion, and when they have eaten it through, fall with it on to the table, with of course disastrous result, unless I happen to come to the rescue. I ought to say that the larvæ are about or more than half grown. Is this procedure of the larvæ abnormal, owing to being in captivity, or is it quite usual with a species feeding on common grasses? *Pamphilus* can live on so many grasses that at large it would practically never suffer any injury by such a habit, as it always occurs where grass is plentiful. I have never seen such a habit in any species that lives on shrubs and trees, or indeed in any other species, and should doubt its being harmless to many Satyrids that live on grasses that grow in widely separated tufts. The great care to avoid such an accident taken by Saturniæ and other large tree-feeding larvæ, reminds one of the caution an elephant is said to take as to his footing. *Pamphilus* is a sluggish larva, and has not the resources of many active larvæ that drop to the ground when disturbed. Its safety lies in its being practically impossible for it to get away from its food plant.—T. A. CHAPMAN, Betula, Reigate: November 19th, 1904.

Coleoptera at Rannoch.—During the present year I have had the opportunity of spending a couple of week ends at Rannoch, and a few notes on the better captures may be of interest.

My first visit was from June 4th to June 6th; the weather was very bright and sunny, but with strong cool winds. The best capture was one specimen of *Staphylinus fulvipes*, Scop., captured running on a road which traverses the centre of the Black Wood. In the well known Dail wood yard the following occurred:—

Rhagium indagator, F., very common; *Asemum striatum*, L., scarce; and *Clerus formicarius*, L., a number of examples. Out of fir stumps I dug specimens of *Rhyncolus ater*, L., *Melanotus castanipes*, Pk., *Rhizophagus ferrugineus*, Pk., and *Epuræa pusilla*, Ill., and from under the bark, *Trypodendron lineatum*, Ol. *Corymbites cupreus*, v. *æruiginosus*, F., was exceedingly common flying in the sunshine, but I did not see a single specimen of the typical form. A single example of *Triplax russica*, L., was taken off a post on a fir fence, and lastly *Polydrusus undatus*, F., was beaten in great numbers off birch, and was the only beetle that I found by beating and sweeping the young birch trees.

My second visit was in July, from the 16th to the 19th. The weather was very hot, and during the first two days free from any wind. On Monday, July 18th, one of the most beautiful days of the summer in that part of the country, I captured *Trichius fasciatus*, L., in some numbers off white roses in the garden of Cross Craig House, by the lake side, and in a cottage garden by the road, and also, again off roses, in the garden of Dall House. I have been told by the local people that this beetle occurs generally in the gardens on the Sweet William, but I could not find a single example on this flower, though there was abundance of it in bloom in the garden of Dall House; all the specimens occurred on the roses. It is certainly one of the most beautiful beetles in life which occur in Great Britain; dead examples give no real idea of its beauty. In the hot sunshine it flies and is as active as a humble-bee. I caught all my specimens by knocking them off the blooms into the net, and it required a very rapid hand to then secure them before they flew out. When held in the closed hand the beetle makes a noise exactly like the humming of an irritated bee, and I was once almost induced to open my hand in the fear that it was a bee I had caught and not a beetle. On the following day, when there was again very bright sunshine but a cool wind, they were much less abundant, but were still as active and as rapid in flight. Other species taken during this visit include *Donacia sericea*, L., and *D. discolor*, Pz., both swept off *Potamogeton* occurring in a pool near the lake side; *Athous niger*, L., found running on the dusty road; *Tropiphorus elevatus*, Hbst., swept off flowers by the lake side; and, lastly, *Pityogenes bidentatus*, Hbst., also swept, but in this case off bracken.—T. HUDSON BEARE, 10, Regent Terrace, Edinburgh: December 7th, 1904.

Coleoptera taken in the Flannan Islands by Mr. W. Eagle Clarke.—During the month of September of this year Mr. Eagle Clarke was living on these remote islands for the purpose of studying the migration of birds. He collected, whenever possible, specimens of insects, and I have had the pleasure of going through the *Coleoptera* and naming them. The Flannans are a group of small, uninhabited islands lying out in the Atlantic, situated about 20 to 23 miles west of the Island of Lewis, and are probably one of the wildest spots in the British Isles. The specimens were all taken on the largest of the group, on which a lighthouse is situated; this particular island is an elevated plateau, about 16 acres in extent, and is surrounded by steep rugged cliffs. The following is a list of the beetles taken:—*Carabus catenulatus*, Scop. (five specimens); *Pterostichus niger*, Schal. (seven specimens); *Nebria brevicollis*, F. (twenty specimens); *Calathus melanocephalus*,

L. (six specimens); *C. cisteloides*, Pz. (six specimens); *Notiophilus biguttatus*, F. (one specimen); *Trechus obtusus*, Er. (two specimens); *Ocypus ater*, Gr. (one specimen); *Philonthus varius*, Gyll. (one specimen); *Aphodius rufipes*, L. (one specimen); *Cholera grandicollis*, Er. (three specimens).—ID.

Phytobius muricatus, Ch. Bris., in Cumberland.—I am glad to be able to give this species a place in our county list of *Coleoptera*, specimens having been taken by Mr. Britten and myself in August last near Penrith from damp moss growing on the ground in a boggy place. It is a very sluggish insect, and takes many minutes to get on the move, failing which it is almost impossible to detect it on the sheet among the loose earth, &c., shaken out of the moss. One or two *P. comari*, Herbst, occurred at the same time, with *Pselaphus dresdensis*, Herbst, *Philonthus corvinus*, Er., &c. *P. muricatus* was introduced as British in 1899, *vide* Ent. Mo. Mag., vol. xxxv, p. 143.—F. H. DAY, Carlisle: December 12th, 1904.

Atemeles emarginatus, Pk., and *Claviger testaceus*, Preyss., in N. Wales.—Records of ants' nest beetles are scarce in the north, so I think it worth while to notice localities for these two species. *Claviger testaceus*, Preyss., occurred to Mr. Newstead rather commonly near Colwyn Bay in April, 1886, and I took three specimens last August at Glyndyfrdwy, in each instance in nests of *Formica flava*. Of *Atemeles emarginatus*, Pk., Mr. Newstead took two examples in May, 1890, at the Loggerheads, near Mold, and Mr. Dutton and I took a good series last August at Glyndyfrdwy: both these records are from nests of *Formica fusca*; and Mr. Jackson informs me that he has taken it sparingly at Llanbedr, Merionethshire.—J. R. LE B. TOMLIN, Chester: December, 1904.

Coleoptera at Tring.—This year, whilst at Tring, in the early part of October, I again tried the spot where one example of *Apion annulipes*, Wenek., was taken previously, and succeeded in securing eighteen in all; of these I was surprised to find that eight were males. Most of the specimens were knocked off some sickly-looking plants of *Origanum vulgare*, growing close to a wood, and three were found running over the leaves of *Thymus serpyllum*. The testaceous coloration of the tibiae in the males, although fairly well marked in the anterior pair, seems far from distinct in the anterior and posterior ones in my specimens, and in fact is practically absent in one or two of them. *Longitarsus tabidus*, Fabr., was found on its usual food-plant, *Verbascum thapsus*, and was accompanied by a few *L. distinguendus*, Rye, *L. gracilis*, Kutsch., and *L. melanocephalus*. *Homalota clavigera*, Scriba, once more turned up in dead leaves, after an interval of six years; other species found with it were *Badister sodalis*, Duft., *Homalota validiuscula*, Kr., and *H. intermedia*, Thoms., *Mycetoporus clavicornis*, Steph., *Quedius lateralis*, Grav., *Oxytelus fairmairei*, Pand., *Neuraphes elongatulus*, Müll., &c.—E. GEO. ELLIMAN, Chesham: November 15th, 1904.

Orchestes sparsus, Fuhr., in the New Forest.—On August 28th, this year, I took a specimen of the very rare *Orchestes sparsus* at Brockenhurst, by beating oak. It rested in our lists heretofore on the strength of a single example taken by Dr. Power at Surbiton in 1866. Dr. Sharp introduced it as British on this speci-

men, which was confirmed as *O. sparsus* by H. Brisout. The New Forest insect agrees with the one in the Power collection, and as Mr. Newbery has stated (Ent. Mo. Mag., vol. xl, p. 134) that the latter was only a small form of *O. ilicis*, F., Messrs. C. O. and E. A. Waterhouse and I have carefully examined it, and we came to the conclusion that this was not the case. Furthermore, I obtained a specimen of *O. sparsus* from the Continent which agrees with the two examples in question. They differ from *O. ilicis* in their much smaller size, narrower and less ovate shape, less developed posterior femora, &c. The insect is less pubescent and much less variegated, and thus it looks blacker, and there is a trace of a band on the elytra. There is a row of short very inconspicuous teeth on the posterior femora in *O. sparsus*, whereas there is one larger one in the middle of the others in *O. ilicis*, but in this the latter appears to vary.—HORACE DONISTHORPE, 58, Kensington Mansions, S.W. : December, 1904.

Meligethes obscurus, Er., in the Isle of Man, with notes on the flowers which it frequents.—I met with this species in some numbers on June 28th, 1903, in a lane on the slopes of the Carnanes just above Seolaby, about 500 feet above sea level, occurring in the following flowers:—*Jasione montana*, *Potentilla reptans*, and *Hypochaeris radicata*. At Perwick Bay, on October 2nd, 1903, I met with a few specimens in flowers of *Taraxacum dens-leonis*. During the present year the species has been abundant, occurring chiefly in flowers of *Jasione montana* growing by the sides of lanes and roads on the Carnanes, between 300 and 500 feet above sea level, on various dates between the 10th and 23rd of July. It was also abundant at Perwick Bay by general sweeping at the base of the cliffs from June 9th to July 7th. A few specimens occurred on Bradda Hill, July 10th, 1904, at a height of 300 feet, in flowers of *Hypochaeris radicata*, and four were captured in this flower at Spaldrick Bay, October 6th, 1904. *Jasione montana* is apparently the flower in this locality to which *Meligethes obscurus*, Er., is specially attached, but although the plant is common and widely distributed the beetle only occurs in certain localities, but when present it is often abundant, as many as five or six specimens being taken in one flower head.

The males (*Meligethes palmatus*, Er.), easily distinguished by the enormously dilated anterior tarsi, are less common than the females in the proportion of about one to three.—J. HAROLD BAILEY, Port Erin, Isle of Man : December 3rd, 1904.

Aculeate Hymenoptera at Lyme Regis.—I again visited Lyme Regis this year during the month of July, and secured the following additions to my list in the Ent. Mo. Mag. (1904, p. 13):—*Formica rufa*, Linn., *Tetramorium cæspitum*, Linn., *Leptothorax tuborum*, Fab., race *unifasciata*, Latr., *Salix exaltatus*, Fab., *Calicurgus hyalinatus*, Fab., *Diodontus minutus*, Fab., *Passalæus gracilis*, Curt., *Nysson trimaculatus*, Rossi, *dimidiatus*, Jur., *Didineis lunicornis*, Fab., *Crabro palmipes*, Linn., *varius*, Lep., *Odynerus spinipes*, Linn., *pictus*, Curt., *Prosopis dilatata*, Kirb., *communis*, Kirb., *confusa*, Nyl., *Sphecodes gibbus*, Linn., *subquadratus*, Sm., *Halictus rubicundus*, Chr., *leucozonius*, Schr., *cylindricus*, Fab., *Andrena rosæ*, Panz., *nigroænea*, Kirb., *fuscipes*, Kirb., *denticulata*, Kirb., *hatterfiana*, Fab., *chrysocæles*, Kirb., *analis*, Panz., *lucens*, Imh., *albicus*, Kirb., *nana*, Kirb., *Cilissa leporina*, Panz., *Nomada alternata*, Kirb., *ochrostoma* Kirb., *fabriciana*, Linn., *furva*, Panz.,

Cælioxys elongata, Lep., *aenminata*, Nyl., *Megachile circumcincta*, Lep., *Osmia cœrulescens*, Linn., *leucomelana*, Kirb., *Stelis 8-maculata*, Sm., *Podalirius furcatus*, Panz., *Psithyrus rupestris*, Fab., *campestris*, Panz. (black vars.), *quadricolor*, Lep., *Bombus agrorum*, Fab., *latreillellus*, Kirb., var. *distinguendus*, Mor., *jonellus*, Kirb., *syllvarum*, Linn. I think the lateness of the season accounted for some that were not observed last year. *Andrena lucens* and *Didineis lunicornis* appeared on almost the last day of my visit, so I was unable to obtain any new details as regards their habits. The former was always taken on *Daucus carota*, the latter creeping among the roots of grass. I may also mention that *Nysson trimaculatus* occurred where the wild strawberry was growing in abundance.—EDW. B. NEVINSON, 5, Bentinck Terrace, Regent's Park: November, 1904.

Note on the behaviour of Leptothorax tuborum.—During my stay at Lyme Regis I found some rotten sticks bored by *Osmia leucomelana* lying on the ground. On cutting one of these open to look for the cells of that bee, I came upon a nest of *Leptothorax tuborum*, Fab. (race *unifasciata*), with undeveloped eggs. This stick I kept in a box, in the hope of obtaining the sexes. I afterwards found similar nests while working in the same place, but only one with eggs in an advanced stage. These unfortunately fell out as I was breaking up the stick; but I recovered most of them, and, on my return, placed them in the box with the others to see what would happen. I then noticed that immediately the workers discovered the new eggs they felt them with their antennæ, seized them about two-thirds down, and carried them into their nest. Within twenty minutes all the eggs had disappeared, the workers being indefatigable. A few days later I opened the stick, and found the eggs in two groups—perhaps owing to want of space—but all carefully tended by the workers. All the eggs hatched out, and several ♂♂ and ♀♀ were obtained. It would be interesting to know if the allied species behave in the same way.—ID.

Societies.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: October 13th, 1904.—MR. HUGH MAIN, B.Sc., Vice-President, in the Chair.

Mr. Lucas exhibited two species of *Ascalaphus* taken by Dr. Chapman this year: *A. coceajus* in South France in May, and *A. longicornis* in Spain in July; also living males and females of *Apterygida media (albipennis)* from its old locality. Mr. Moore, several large species of *Cicada* from Tasmania. Mr. Turner, imagines and cases of the local Coleophorid, *C. vibicella* from Trench Wood, where it was now very rare; and a life history of *C. laricella*, showing the peculiar structure and position of the cases at various ages of the larva. Mr. Joy, a bred series of *Polyommatus bellargus* from Folkestone, and gave notes on their history. Mr. Carr, the cocoon of *Lasiocampa quercus* previously shown. Since no imago had emerged he had opened it and found a crippled imago, a batch of ova, and a distorted pupa, all dead. Mr. West (Greenwich), four species of grasshoppers from Box Hill: *Stenobothrus parallelus*, *S. elegans*, *Gomphocerus rufus* and *G. maculatus*. Mr. Goulton, lantern slides of the larva of *Gonepteryx rhamni*, in various positions during the act of pupating. Mr. Lucas, lantern slides showing larva and details of the lady-bird *Illyzia ocellata*, *Lepidoptera* at rest, &c.

October 27th, 1904.—Mr. E. STEP, F.L.S., Vice-President, in the Chair.

Mr. Goulton exhibited a series of photographs of Lepidopterous larvæ on their respective food-plants. Mr. Harrison and Mr. Main, series or examples of *Lepidoptera* taken at or bred from Bude, including *Cleora lichenaria*, *Dianthecia luteago*, var. *ficklini*, *D. conspersa*, *Lencophasia sinapis*, *Polia xanthomista*, and *Boarmia gemmaria*. Of the last species examples from Delamere and London were also shown. Mr. West (Greenwich), the case of a large species of *Psychid* from South Africa. Mr. Turner reported finding larvæ and cases of *Coleophora virgaureæ* on golden rod at Sevenoaks, Kent, as well as larvæ of *Eupithecia expallidata*.

November 10th, 1904.—Mr. E. STEP, F.L.S., Vice-President in the Chair.

Mr. Fremlin exhibited ordinary and loosely attached scales of *Hemaris fuci-formis* under the microscope. Mr. Harrison and Mr. Main, series of *Dianthecia albimacula* from Folkestone, *Cymatophora duplaris*, including two melanic specimens from Simonswood Moss, Lancashire, and a form of *Melanargia galathea* with a black streak running through the large white basal areas of the fore-wings. Mr. Main, some large Reduviids from West Africa.

A special meeting was then held to consider the proposed alteration of Bye-Laws.—HY. J. TURNER, Hon. Secretary.

ENTOMOLOGICAL SOCIETY OF LONDON: Wednesday, November 2nd, 1904.—Professor E. B. POULTON, M.A., D.Sc., F.R.S., President, in the Chair.

Mr. E. A. Agar, of La Haut, Dominica, British West Indies; Mr. Richard Siddoway Bagnall, of the Groves, Winlaton-on-Tyne, Durham; Mr. Kenneth Glyne Blair, of 23, West Hill, Highgate, N.; Mr. Edward Alfred Cockayne, B.A., of 30, Bedford Court Mansions, W.C.; Mr. George Blundell Longstaff, D.M., of Twicken, Mortehoe, R.S.O., Devon, and Highlands, Putney Heath, S.W.; Mr. Richard Arthur Ruby Priske, of 66, Chaucer Road, Acton; and Mr. Herbert W. Simmonds, of 17, Aurora Terrace, Wellington, New Zealand; were elected Fellows of the Society.

Mr. J. E. Collin exhibited a specimen of *Platyphora lubbocki*, Verr., a species of *Phoridæ* parasitic upon ants, the first recorded specimen since the one originally bred by the present Lord Avebury in 1875, and described for him by Mr. G. H. Verrall in the Journal of the Linnean Society for 1877. Mr. P. J. Barraud, an aberrant *Epinephele jurtina* (*janira*), ♂, taken by him this year in the New Forest, agreeing with the form recently described by Mr. Roger Verity as *ab. anommata*. Mr. J. Edwards sent for exhibition three specimens of *Bagous lutosus*, Gyll., one found by himself on Wretham Heath, Norfolk, on August 4th, 1900—the first recorded authentic British example—and two taken in the same locality by Mr. Thouless on May 2nd, 1903; also *Bagous glabrirostris*, Herbst, from Camber, Sussex, for comparison. Dr. T. A. Chapman, bred specimens of *Hastula* (*Epagoge*, Hb.?) *hyerana*, Mill., from larvæ taken at Hyères last March, and said the facts that the pale forms only have hitherto been known, whereas of those bred nearly half are dark, suggests either that really very few specimens are in collections—which is the most probable case—or that melanism is now affecting the species. The larvæ are not uncommon at Hyères. Before he bred the species this year a single dark specimen only was known, viz., one taken by Lord Walsingham at

Gibraltar, which he named *neargurata*, and he was in doubt whether it was a var. of *hyerana*, or a new species. Mr. W. J. Kaye specimens of the moths *Castnia fonscolombeii* and *Protambulyx ganascus*, showing the warning and protective colouring of the two species. Mr. H. W. Andrews, specimens of *Eristalis cryptarum*, F., and *Didea alneti*, Fln., two species of uncommon *Syrphidae* from the New Forest. Mr. Edward Harris, a brood of *Hemerophila abruptaria* bred by him this season, together with the parent male and female; the female, a dark specimen, was taken in his garden at Upper Clapton, on May 25th, and the male, a normal type, at Ilford, on May 26th. Of the offspring, eighteen in all, eight were females, of which four were dark specimens and of normal size. Of the ten males five were dark examples, darker than the females, but small even for males. They were smaller than the light specimens of the same brood. One of the light males emerged with only three wings, the left fore-wing being absent. From dark specimens mated on August 12th fifty-seven larvæ had been reared. Paymaster-in-Chief Gervase F. Mathew, R.N., some beautiful and interesting examples of *Leucania faviolor*, Barrett, including the varieties described by Barrett in the current volume of the Ent. Mo. Mag., p. 61, and, more recently, by Tutt in the Entomologist's Record for this year, p. 252. He also exhibited a beautiful series of twenty-four *Camptogramma fluviala*, the descendants of a wild pair captured on September 22nd, 1903, showing a wide range of colour variation. The President, a photograph taken by Mr. A. H. Hamm, showing protective flower selections by *Pieris rapæ*. The President also exhibited four specimens of *Conorrhinus megistus*, Burm., the large South American Reduviid which is well known to attack man, out of over a dozen brought back by Mr. W. J. Burchell in 1828.

Wednesday, November 16th, 1904.—The President in the Chair.

Mr. Edward Goodwin, of Canon Court, Watlingbury, Kent, was elected a Fellow of the Society.

Mr. H. St. J. Donisthorpe exhibited the second recorded British specimen of *Orchestes sparsus*, Fahr., taken by him on August 28th last in the New Forest. Mr. H. W. Andrews, specimens of *Atherix crassipes*, Mg., from the New Forest, the only previously recorded locality in Britain being near Ticehurst, Sussex. Mr. G. O. Sloper, two aberrant forms of *Melitæa athalia*, ♂ and ♀, from Lugan, above Corberier, Switzerland, and one ♂ from Martigny, taken on June 26th of this year. The tendency of the black markings to supersede the fulvous was particularly noticeable in the latter specimen. The President, cases containing *Diptera*, and a case containing the skins of African Sphingid larvæ, dried in botanical paper, and still preserving their colours, from the Burchell collection in the Hope Museum, Oxford. Mr. C. O. Waterhouse, a gall of some Lepidopterous insect found on the Califate bushes in Patagonia. The gall resembled that of *Cynips kollari*, but was hollow, the walls being about $\frac{1}{8}$ inch in thickness. The circular door prepared by the larvæ was about $\frac{3}{8}$ inch in diameter. The pupa was lying free, without any silk cocoon. It was suggested that the insect was perhaps allied to *Æcoecis*. Mr. G. H. Kenrick communicated a paper entitled "Natural Selection applied to a Concrete Case." Mr. J. C. Kerslaw communicated papers on "Enemies of Butterflies in South China," and "A Life History of *Gerydus sinensis*." Mr. Nelson Annandale, B.A., communicated a paper on "The Eggs and Early Stages of a Coreid Bug, probably *Dalader acuticosta*, with a note on its Hymenopterous Parasites."—H. ROWLAND BROWN, *Honorary Secretary*.

In Memoriam.

CHARLES GOLDING BARRETT.

Charles Golding Barrett was born at Colyton, Devon, on May 5th, 1836, the son of an officer in the Inland Revenue Department. He was at first intended for an engineer, and to that end worked for two years as an apprentice at the Coalbrookdale Ironworks, Salop; but in 1856 he entered the Civil Service, his long and honourable career therein being closed by his retirement, from nearly the highest rank in his Department, in April, 1899.

As a boy he was very fond of collecting objects of Natural History, and he appears to have commenced the serious study of our native *Lepidoptera* at about his twentieth year. We find him in August, 1856, sending to the then newly established Entomologist's Weekly Intelligencer (vol. i, p. 165) a record of the occurrence of *Colias edusa* at Forest Hill; and at p. 179 of the same volume is a note by him on *Vanessa c-album* in Shropshire, in which the marked differences between the summer and autumn broods are, we believe, referred to for the first time. An interesting light is thrown on his energetic methods of working in those early days by a note in the "Zoologist" (p. 6215), in which he relates that, after collecting all night in West Wickham Wood, and lying down towards sunrise for a nap under a fence, he was awakened by the gambols of a merry dancing party of *Fumea nitidella* ♂, which had selected his face as their ballroom!

His removal from London to Dublin in 1859 resulted in the thorough working, in company with several other energetic collectors, of Howth and other productive localities near that city; and his sojourn there was signalized by the addition by him to our fauna of such notable species as *Lithosia caniola*, *Dianthæcia capsophila*, the remarkable form of *D. luteago* described by Henry Doubleday as *D. barrettii*, and the beautiful *Gelechia tarquiniella*. A full and very interesting list of his Irish captures appears in the "Zoologist" for 1861 (p. 7799 *et seq.*).

Haslemere, where Mr. Barrett was stationed in 1862, soon became classic ground to our Lepidopterists from his continuous captures of rare and interesting species, among which *Madopa salicalis* deserves a passing notice. Being transferred to Norwich in 1868, the Norfolk Fens and the "Breck" and coast sands afforded a new and most interesting field to his untiring energy, and many notes on their insect

treasures are to be found in our pages. From 1875 to 1884 we find him located at Pembroke, in an entirely unworked district of great promise, hardly however fulfilled; though our collections owe most of their representatives of *Diaemia literalis* and *Eupæcilia mussehlana* to his fortunate discovery of the habitat and habits of these very rare species.

After a London appointment of not long duration, in 1886 he was transferred to King's Lynn, where he continued to make observations and captures of the greatest interest, among which the virtual discovery, in conjunction with Mr. E. A. Atmore, of the fine *Eupithecia extensaria* as a British species may be specially noted. In 1889 he received an important and responsible post in South London, where, at Nunhead and subsequently at Peckham Rye, the remainder of his busy and active life was passed.

From the first establishment of our Magazine in 1864 Mr. Barrett was a constant contributor to our pages; in fact, his name appears in our "Index" attached to no fewer than 330 separate entries, the last appearing so recently as December, 1904. Among these contributions the "Notes on British Tortrices," which appeared at intervals between 1872 and 1890, and embody the records of many additions to our Fauna, are the most important, and mark an era in our knowledge of this interesting series of moths. His chief work, "The Lepidoptera of the British Islands," was begun in 1892, and the ninth volume, which extends to the commencement of the *Crambites*, was issued last year. This section was completed in the parts since published, and it is with great satisfaction that we learn that the material exists to carry the work to the end of the *Tortricina*, the group which our lamented colleague had made so completely his own. In the preface to Vol. 1 he remarks—"My aim is, not only to furnish original and accurate descriptions of the perfect insects, and the most reliable descriptions obtainable of their larvæ and pupæ, but also such particulars of their habits and ways, drawn from personal experience and the most reliable records, as shall present them to the reader as creatures which enjoy their lives, and fill their allotted positions before they take a more permanent place in the museum or the cabinet."

This is the keynote of the book, which is too well known and esteemed by all Lepidopterists to need further comment, and it exhibits the author in his strongest point, as essentially a field naturalist of the highest type. It was never the good fortune of the present writer to enjoy the company of Mr. Barrett in the field, but the many entomologists who have had that privilege unanimously bear witness to his wonderful powers of work, as well as to his resourcefulness, patience and acumen in tracking the most obscure and retiring species to their

habitat. The candour and generosity with which he placed his vast stores of entomological knowledge at the disposal of all his friends, and his genial, energetic and hearty manner, made him a delightful companion; nor will his unstinted liberality in supplying our collections with the rare and interesting species he so frequently met with be readily forgotten.

In his public no less than in his private life, Mr. Barrett commanded the esteem and affection of all who knew him; and we can here merely allude to the active and disinterested part in the field of religion and temperance which he took throughout his life.

Since June, 1880, he was one of the most valued members of our Editorial staff, and his decease leaves a void that will long be felt by his colleagues. In 1884 he became a Fellow of the Entomological Society, and was a Vice-President in 1901; and in 1892 he was President of the South London Entomological Society.

For some time past the robust health that had for so long stood him in good stead had been failing, and he succumbed to an acute attack of bronchitis, passing away peacefully on the morning of December 11th, 1904. His remains are interred at Forest Hill Cemetery. We understand that his extensive Collections of British, European, and South African *Lepidoptera*—the last received from a sister in Cape Colony, and the subject of some interesting notes in our pages—are to be disposed of.

We are greatly indebted to Mr. C. G. Barrett, of King's Lynn, the eldest son of our departed colleague, to his daughter, Miss L. Barrett, and to the courtesy of the editor of the "Civilian," for material assistance in preparing this notice.—J. J. W.

EDITORIAL.

We have great pleasure in announcing that Mr. GEO. T. PORRITT, F.L.S., has consented to fill the vacancy on our staff caused by the death of Mr. C. G. BARRETT. Mr. PORRITT has for many years past been one of our most esteemed contributors on the Order *Lepidoptera*, and more recently on the *Neuroptera* and *Trichoptera*; and his assistance in these departments of Entomology will, we feel sure, be appreciated by our readers no less than by ourselves.

Hemiptera in Miller's Dale, Buxton, and Sherwood Forest.—In June, 1902, I met with single specimens of *Zizrona cœrulea*, Linn., and *Pentatoma juniperinum*, Linn. The first was taken on a stone in the brilliant sunshine, and the latter occurred by beating hazel or blackthorn; there is, as far as I can find, no juniper at all in the Dale. At Sherwood, in June of the past year, *Calocoris striatus*, Linn., was tolerably abundant by beating young oaks on the Welbeck side of the forest. I am indebted to Mr. E. Saunders for very kindly determining these insects for me.—J. KIDSON TAYLOR, 35, South Avenue, Buxton: January, 1905.

ON SOME JAVANESE COCCIDÆ: WITH DESCRIPTIONS OF NEW SPECIES.

BY E. ERNEST GREEN, F.E.S.,

Government Entomologist, Royal Botanic Gardens, Peradeniya, Ceylon.

(Concluded from vol. xi, page 210).

LEPIDOSAPHES PINNÆFORMIS, Bouchè.

On *Citrus* (No. 18).

This is the cosmopolitan insect, hitherto generally known as *Mytilaspis citricola*, Pack. Dr. Leonardi has now identified it with the older name of *pinnæformis*, of Bouchè; and Mrs. Fernald, in her "Catalogue of the Coccidæ of the World," shows that *Lepidosaphes* of Shimer has precedence over *Mytilaspis* of Signoret.

LEPIDOSAPHES CRAWII, Ckll.

On *Pterospermum javanicum* (No. 63).

LEPIDOSAPHES LASIANTHI, Green.

On undetermined plant (No. 104).

OPUNTIASPIS JAVANENSIS, *sp. nov.* (fig. 5).

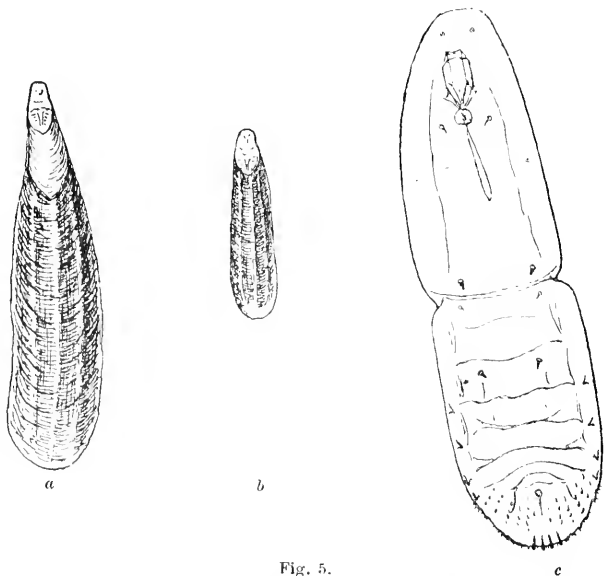


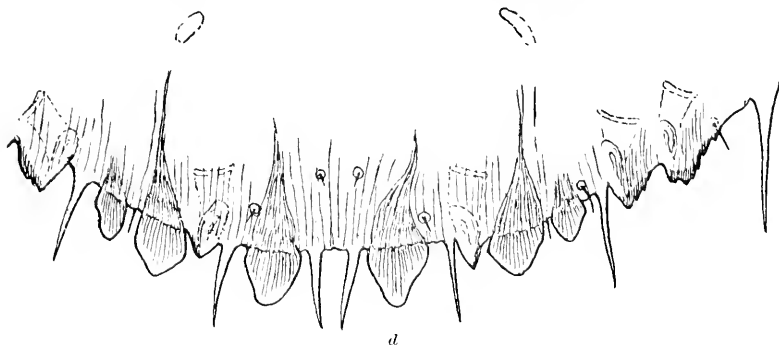
Fig. 5.

Female puparium (fig. 5a) elongate, narrow; sides subparallel; carinae not very prominent; margin and posterior extremity flattened. Colour reddish-brown to deep purple-brown; margin and posterior extremity whitish; pellicles reddish.

Length, 3 mm.; greatest breadth, 1 mm.

Male puparium (fig. 5b) similar in form, colour and texture to that of ♀. Posterior third somewhat depressed and concave, as in male puparia of *parlatoria*. Length, 1.75 to 2 mm.

Adult ♀ (fig. 5c) elongate, narrow; a transverse furrow and deep lateral cleft approximately bisecting the insect, between meso- and meta-thorax. Derm chitinous, smooth. Some scattered longish, stout, spiniform hairs on ventral surface of meta-thorax and abdominal segments. Margin of posterior half incurved ventrally, the incurved portion bearing a stout thorn-like process on each segment; a pair of stout chitinous spines on the venter of the mesothorax—close to the transverse furrow, and a second pair on venter of first abdominal segment. A submarginal longitudinal fold on each side. Pygidium (fig. 5d) rounded. Median lobes rather widely



separate, small but prominent, conical, slightly constricted at base. First lateral lobe similar in form and size, followed by a smaller lobe, which—though separated from it by a considerable interval—corresponds to the outer lobule of the duplex lateral lobes in *Lepidosaphes* and *Chionaspis*. Other lobes obsolete. Squamæ spiniform, with dilated bases. No circumgenital glands. Length, 1.50 to 2 mm.

Habitat: on *Agave mexicana* (No. 51).

Differs from *O. philococcus*, Ckll., in the number of the pygidial lobes.

HEMICHIONASPIS ASPIDISTRÆ, Sign.

On *Piper nigrum* (No. 23); and *Uncaria gambir* (No. 88).

HEMICHIONASPIS DRACÆNÆ, Cooley.

On *Pachira aquatica* (No. 50).

CHIONASPIS (PHENACASPIS) VARICOSA, Green.

On *Piper nigrum* (Nos. 23 and 37).

CHIONASPIS (PHENACASPIS) DILATATA, Green.

On *Ficus* sp. (No. 51); *Myristica fragrans* (No. 75); *Hevea brasiliensis* (No. 81); and *Willughbeia* sp. (No. 93).

CHIONASPIS VITIS, Green.

On *Loranthus* sp. (Nos. 72 and 101).

CHIONASPIS HEDYOTIDIS, Green.

On *Mangifera* sp. (No. 77).

CHIONASPIS LITZEE, Green.

On *Cinnamomum zeylanicum* (No. 41).

LEPIDOSAPHES UNGULATA, n. sp. (Fig. 6).

Female puparium dark reddish-brown, margin and pellicles paler. Elongate, narrow, usually sinuous; median area moderately convex, margins flattened; surface dull, obscurely transversely corrugated. Below with a well defined channel for the reception of the body of the insect. Length, 2 to 3 mm.; breadth, 0.8 to 1 mm.

Male puparium smaller; dark brown, with a pale transverse band towards the hinder extremity, at the point where the scale is hinged to facilitate the egress of the winged insect. Length, 1.50 mm.; breadth, about 0.50 mm.

Adult ♀ (fig. 6a), elongate, broadest across abdominal area; the cephalo-thoracic area occupying full two-thirds of the total length. Margins of the four abdominal segments strongly produced and armed with claw-like processes (fig. 6b). The processes on the first abdominal segment merge into



Fig. 6a.



Fig. 6b.

spiniform squames with tubular glands; those on the outer segments appear to be unconnected with glands. Pygidium (fig. 6c) irregularly rounded; median

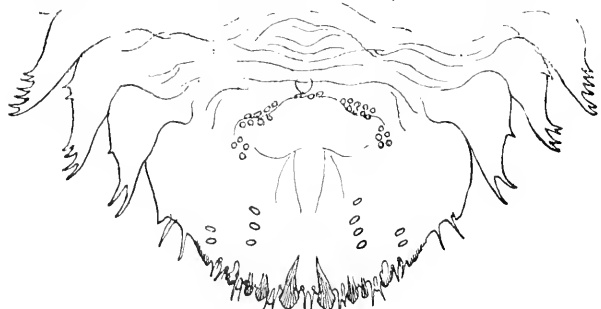


Fig. 6c.

lobes prominent, slightly emarginate; second lobes duplex, the lobules distinct and separate. Beyond the lobes are three thickened marginal prominences. In each interval are a pair of spiniform squames, those on each side of the second lobes situated on a conspicuous marginal process bearing a large pore. Anal aperture at base of pygidium. Circumgenital glands in five groups; median with 3 to 4 orifices; upper laterals with 6 to 9; lower laterals with 4 to 6. Oval dorsal pores in two small series on each side.

Length, 0.75 to 1 mm. Greatest breadth, about 0.40 mm.

Adult ♂ unknown.

On *Syzygium pseudo-jambolanum*.

The remarkable unguliform processes on lateral margins of abdominal segments sufficiently distinguish this from allied species.

ASPIDIOTUS (*EVASPIDIOTUS*) *PUSTULANS*, *n. sp.* (Fig. 7).

Female puparium irregularly circular. Moderately convex. Brownish-fulvous. Pellicles concolorous, inconspicuous. Surface dull and roughened.

Diameter, 1 to 1.50 mm.

Male puparium not observed.

Adult ♀ broadly turbiniiform. Older examples rather densely chitinous. No

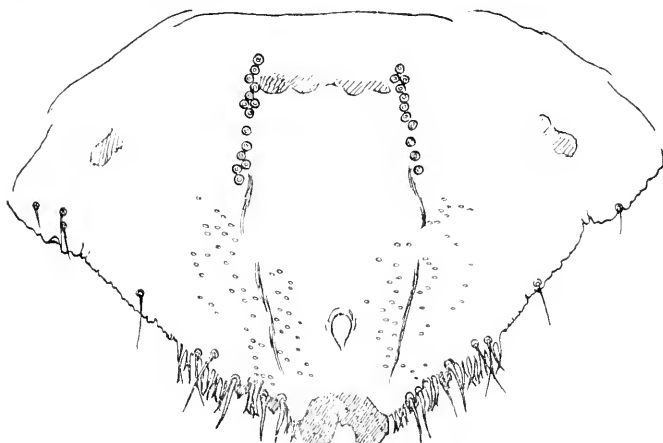


Fig. 7 a.

parastigmatic glands. Pygidium (fig. 7 a) with median lobes large, stout and prominent, irregularly and obscurely excised. Two lateral lobes on each side, small

with broad base and aciculate apex (fig. 7 b). Squames numerous, stout; some obscurely furcate, others spini-form; extending along margin for some distance beyond the lobes. Spines long, stout and conspicuous. Circum-genital glands in four groups; upper laterals 8 to 11; lower laterals 3 to 6. Dorsal pores numerous, minute crowded. Length, 0.80 to 1.10 mm. Breadth, 0.75 to 1 mm.

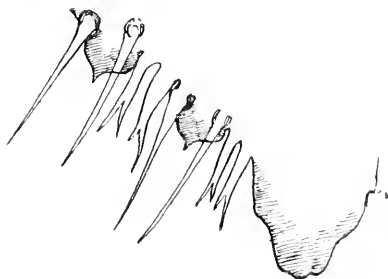


Fig. 7 b.

On *Erythrina lithosperma*, the scales occupying shallow pits in the surface of the bark.

AONIDIA JAVANENSIS, *n. sp.* (Fig. 8).

Female puparium subcircular, posterior extremity slightly pointed; occupied almost completely by the large second pellicle with a very narrow secretory border. First pellicle rather strongly convex, centrally placed. Colour, dull reddish-brown; the first pellicle outlined with fulvous. Diameter, about 1 mm.

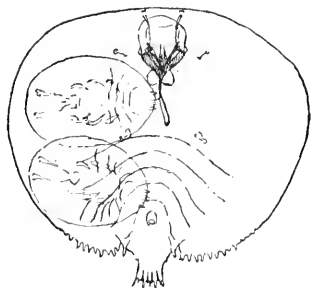


Fig. 8 a.

Male puparium larger, paler and flatter ; rather broader than long. Colour, brownish-ochreous. Diameter, about 1 mm.

Adult ♀ (fig. 8 a) of normal form ; sub-circular, the outline broken by the pygidium, which is moderately prominent. Rostrum close to anterior margin ; large and conspicuous. The body cavity usually contains two large embryos. Margin of abdominal segments tentaculate. Pygidium (fig. 8 b) of irregular outline. Four small narrow lobes, between and beyond which

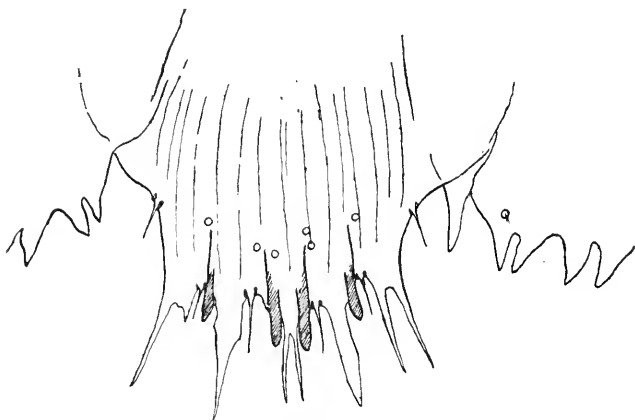


Fig. 8 b.

the margin is produced into long lanceolate processes, varying in size and form in different examples.

Long diameter, 0.50 to 0.65 mm.

On under-surface of leaves of *Myristica fragrans* ; the scales disposed along the midrib and prominent veins of the leaf.

EXPLANATION OF FIGURES.

Fig. 1.—*Lecanium tenebricophilum*.

- (a) Section of *Erythrina* branch, with insects *in situ*. Nat. size.
- (b) Adult female, $\times 4$.
- (c) Spiracle of female, greatly enlarged.
- (d) Derm of female, greatly enlarged.
- (e) Plates of anal operculum, greatly enlarged.

Fig. 2.—*Pulvinaria maxima*.

- (a) Marginal spines, $\times 650$.
- (b) Antenna, $\times 150$.

Fig. 3.—*Ceroplastes cirrhipediformis*.

- Stigmatic spines, $\times 650$.

Fig. 4.—*Aspidiotus euculiginis*.

- Extremity of female pygidium, greatly enlarged.

Fig. 5.—*Opuntiaspis javanensis*.

- (a) Female puparium, $\times 17$.
- (b) Male puparium, $\times 17$.
- (c) Adult female, ventral view, $\times 40$.
- (d) Extremity of female pygidium, $\times 650$.

Fig. 6.—*Lepidosaphes unguata*.

- (a) Adult female, $\times 80$.
- (b) Margin of abdominal segment, $\times 180$.
- (c) Pygidium, $\times 200$.

Fig. 7.—*Aspidiotus pustulans*.

- (a) Pygidium of female, $\times 200$.
- (b) Margin, showing lateral lobes, $\times 600$.

Fig. 8.—*Aonidia javanensis*.

- (a) Adult ♀, $\times 75$.
- (b) Pygidium, $\times 650$.

DRAGON-FLY HUNTING IN EASTERN SWITZERLAND.

BY KENNETH J. MORTON, F.E.S.

(Concluded from page 4).

The weather had now become settled and very hot, and the Sth saw us back for the day to near Zürich, our destination being the Oerlikon Riet, including the River Glatt, and our special quarry the *Gomphinae* and *Somatochlora flavomaculata*. Taking the train to Glattbrugg, our course led us along the banks of the Glatt for a stretch, then over the Riet to Oerlikon Station. The Glatt is here a slow stream with corrected course. On either side of it stretch tracts of marshy meadow with little clumps of wood, an ideal locality for *Neuroptera*. Perhaps in no other place did we see so many dragon-flies. It is no exaggeration to say that *Calopteryx splendens* must have existed in thousands on the short reach of the river which we traversed. I have hardly ever witnessed a prettier sight than these multitudes of lovely dragon-flies. A female never took flight without having half-a-dozen or so male attendants in her train, and these curious little processions were constantly flitting about the river. Not less numerous, but less conspicuous, was *Platynemis pennipes*. *Anax imperator* was present in fair numbers, each patrolling his special section steadily, except when a wandering *Gomphus* provoked the tyrant to a chase. A worn ♀ of *A. parthenope* was taken; it had probably flown from the Metmenhasler See. The Gomphids were not common and were difficult to catch, the difficulty being enhanced in no small degree by the relentless attacks of *Tabani*

which swarmed in the long herbage along the river bank. One of the first seen was *Ophiogomphus serpentinus*, the most beautiful of the European Gomphids, and quite different from the others on account of its exquisite green coloration. The species was not at all frequent, and it was the most wary, only one being secured by Dr. Ris. *Onychogomphus forcipatus* was not quite so rare, and a few good males were caught, while *Gomphus vulgatissimus*, quite unexpectedly, put in an appearance. One or two *Platetrum depressum* were noticed at a small lateral stream. But *Somatochlora flavomaculata* outnumbered all the other larger dragon-flies; every corner along the margins of the wood, and almost every small clump of bushes gave shelter to a ♂ which was not as a rule difficult of capture. One of the striking features of the Glatt marshes was *Papilio machaon*, which was flying about in splendid examples of the second brood.

Our last excursion in the low country was to the Hauser See a pretty lake near Ossingen (about 1360 feet s. m.), and distant from Rheinau about $5\frac{1}{2}$ miles. The walk was sufficiently long in the intense heat. When we were still some distance from the lake, a few *Orthetrum brunneum* appeared flying over the road. Entering the shaded paths in the woods surrounding the lake, we found them alive with *Limnitis sybilla*. I have never seen it before in such numbers, but they were nearly all much worn and we had no time to spare to select them. So we left them alone, as we also did *Apatura iris*, which once or twice tempted us to linger, and we very soon reached the lake. This is one of the localities where the great prize *Epitheca bimaculata* is to be found, but we were of course too late for it. Amongst the first species seen were *Somatochlora metallica* flying along the margin, and a little farther on one or two *Libellula fulva*, together with a ♂ *Sympetrum sanguineum*. But we hastened on to the corner for *Leucorrhinia*, only to find that in this early season we were too late. *L. albifrons* was still present and a few pairs were taken, but of *L. pectoralis* only one ♂ was seen and taken by Dr. Ris, who handed it over to me with his usual generosity, which extended to everything of any value that was found. *L. caudalis*, which also occurs here, was evidently quite over. The usual complement of small dragon-flies was obtained, including *Pyrhosoma tenellum*, and on going round to the other side of the lake we found *Gomphus pulchellus* common, but worn. *Orthetrum cancellatum* was again present, but I found this species one of the most difficult of all to catch. Leaving the lake proper, a little marshy meadow was visited for *Lestes dryas*, of which we got a few, and the same locality

produced a few *Æschna grandis*. By this time the woodland paths were quite gloomy, and stealing along them *Æ. cyanea* was taken. An unusual capture on the way home was *C. ænea* flying along the road.

On the following morning we reluctantly bade adieu to our good friends at Rheinau and proceeded to Chur, whence we drove to Lenzerheide, a health resort, situated between Churwalden and Tiefencastel, at an elevation of about 4800 feet. Here we remained until July 18th. It looked an excellent locality for *Neuroptera*, possessing a fine lake, the Heidsee, and an abundance of running waters. The weather which had been hot and cloudless in the low country, changed when we reached the Alps, and for a day or two thunder storms and heavy rain prevailed to a degree that was rather depressing. In the fitful gleams of sunshine we saw few dragon-flies; odd examples of *Somatochlora*, a ♀ *S. alpestris* being taken, *Orthetrum cærulescens*, *Libellula quadrimaculata*, *Leucorrhinia dubia*, and *Enallagma cyathigerum*. These gave very little promise of what was in store for us. Finally, after a terrific storm, the morning broke cool and cloudless, giving promise of a fine day. The forenoon will long be remembered. A stretch of boggy land on the side of the stream, just after it leaves the lake, was found to be alive with *Somatochlora*, and here during the next few days beautiful series of *S. alpestris* and *S. arctica* were caught. On the quiet portion of a lateral streamlet and at the lake a few *S. metallica* were found, but here this species was scarcer than the other two. *Æschna juncea* proved to be common also, and *Cordulegaster annulatus* was seen during the last two days, but it was still rare, and I failed to get more than one ♂.

Our next move was over the Julier Pass to Silvaplana. We had no difficulty in making out, from the excellent maps with which Dr. Ris had provided us, where the most likely localities were to be found. Crossing to the other side of the Silvaplana See and going through the woods in the direction of Campfer, we soon found the Lej Nair, and here and on the marshes surrounding it we discovered once more the haunts of the lovely alpine Cordulines. *Somatochlora metallica* was particularly abundant and an easy capture as it hawked round the margins of the lake. An interesting form of *Calopteryx splendens* occurred rarely here, very similar to that which I found at Digne, and much closer to the southern form than the one occurring about Zürich. *Æ. juncea* was exceedingly common, and was noticed even at the Hannen See (7000 feet), the only dragon-fly seen there.

Still more productive than Lej Nair was another smaller lake at a somewhat lower level near Campfer. *S. arctica* and *alpestris* were not taken there, although they may quite well occur, but *S. metallica*, *L. dubia*, *Æ. juncea*, *Agrion puella* and *hastulatum*, and *E. cyathigerum* (the last two being also found at Lej Nair) were all more or less abundant. In the woods *Sympetrum meridionale* and *S. striolatum* were frequently seen; and one day near Silvaplana I believe I saw *P. depressum*. The only species which should have been found and was not, was *Æ. cærulea*, which was taken by Mr. McLachlan at the Staatzer See. It must surely be much rarer in the Alps than in the boreal parts of Europe.

At Silvaplana our dragon-fly hunting ended. We went on to Maloja and Chiavenna on the 25th, and after visiting Como proceeded over the Splügen to Thusis, thence home by way of Zürich and Basel. Excepting a Cordulid noticed flying about the pier at Varenna and a few examples of *Sympetrum* in the Val Bregaglia and elsewhere, no more dragon-flies were seen.

The total number of species observed on our journey was 45. The first rush of dragon-fly life was over before we reached Switzerland. *Brachytron pratense* had absolutely disappeared, the *Libellulas* and *Leucorrhinias* were practically over, while the time of *Sympetrum* and *Lestes* had not yet fully come. One or two additional species might have been obtained by visiting special localities, but we were well content with the results which could scarcely have been achieved if we had not had the good fortune to be under such experienced and painstaking guidance. The following is a complete list of the species seen:—

Leucorrhinia pectoralis, Charp.; *L. dubia*, Vanderl.; *L. albifrons*, Burm. *Sympetrum striolatum*, Charp.; *S. meridionale*, de Selys; *S. fonscolombii*, de Selys; *S. sanguineum*, Müll.; *S. scoticum*, Donovan. *Platetrum depressum*, L. *Libellula quadrimaculata*, L.; *L. fulva*, Müll. *Orthetrum cærulescens*, F.; *O. brunneum*, Fosc.; *O. cancellatum*, L. *Cordulia xnea*, L. *Somatoclora metallica*, Vanderl.; *S. alpestris*, de Selys; *S. flavomaculata*, Vanderl.; *S. arctica*, Zett. *Onychogomphus uncatatus*, Charp.; *O. forcipatus*, L. *Ophiogomphus serpentinus*, Charp. *Gomphus vulgatissimus*, L.; *G. pulchellus*, de Selys. *Cordulegaster annulatus*, Latr. *Anax imperator*, Leach.; *A. parthenope*, de Selys. *Æschna cyanea*, Müll.; *Æ. juncea*, L.; *Æ. grandis*, L.; *Æ. isosceles*, Müll. *Calopteryx virgo*, L.; *C. splendens*, Harris. *Lestes dryas*, Kby.; *L. sponsa*, Hans. *Platycnemis pennipes*, Pallas. *Erythromma najas*, Hans. *Pyrrhosoma nymphula* Sulz.; *P. tenellum*, Vill. *Ischnura elegans*, Vanderl. *Enallagma cyathigerum*, Charp. *Agrion pulchellum*, Vanderl.; *A. puella*, D.; *A. hastulatum*, Charp.; and *Nehalennia speciosum*, Charp.

SILVANUS MERCATOR, FAUVEL, A SPECIES OF *COLEOPTERA*
NEW TO BRITAIN.

BY J. R. LE B. TOMLIN, M.A., F.E.S.

In the Ent. Mo. Mag., 1896, p. 261, Mr. Champion predicts the eventual discovery of *Silvanus mercator*, Fauv., in Britain. He has recently identified some specimens which I received from Mr. E. A. Atmore as this species. It may easily be recognised from *S. surinamensis*, L., by the small size of the temples, which are two-thirds of the diameter of the eyes in the latter species, whereas they are only one-fifth in *S. mercator*.

A dichotomous table of the genus will be found in the article cited above. My specimens were found in a bakery at King's Lynn, Norfolk.

Chester : *January, 1905.*

ALGERIAN MICROLEPIDOPTERA.

BY THE RT. HON. LORD WALSLINGHAM M.A., LL.D., F.R.S., &c.

(Continued from Vol. XI, p. 273).

3040 : 1.—*SYMNOCA PONERIAS*, *sp. n.*

Antennae brownish fuscous. *Palpi* white, the median joint suffused with brownish fuscous externally nearly to its apex. *Head* hoary white. *Thorax* pale creamy ochreous. *Forewings* pale creamy ochreous, sprinkled sparsely with rust-brown scales, with three groups of brownish fuscous scales along the costa and one before the apex; the first costal spot is at the base, with a rust-brown dot at its lower edge; the second at one-third, rather triangular, with a small rust-brown spot at its apex; the third at two-thirds, a little beyond a rust-brown transverse streak at the end of the cell, below which is another rust-brown spot on the dorsum, a smaller one lying just below the middle of the fold; the base of the pale ochreous cilia is also dusted with rust-brown beyond the apical fuscous spot. *Exp. al.*, 12—13 mm. *Hindwings* cilia and *Abdomen* rather dark grey. *Legs* whitish ochreous.

Type, ♂ (96348). Mus. Wlsm.

Hab. : ALGERIA — Hammam-es-Salabin, 18.IV — 17.V.1903. Three specimens taken on the hills above Hammam-es-Salabin in early morning.

Closely allied to *tofosella*, Rbl., but distinguished by its white head, its more rusty coloured forewings and less conspicuous spots.

3043 : 1.—*SYMNOCA CALIDELLA*, *sp. n.*

Antennae pale yellowish ochreous. *Palpi* dull white, smeared externally, nearly to the apex of the median and on the terminal joint, with pale brownish

fuscous. *Head* and *Thorax* dull white. *Forewings* dull white, minutely sprinkled and sparsely spotted with pale brownish fuscous; the ill-defined spots are formed by aggregation of the otherwise scattered pale fuscous scales and are, first a small streak at the base of the costa, reduplicated below and beyond; secondly a subcostal spot at one third, then a spot at the end of the cell, preceded by one a little beyond the middle of the fold, with another, subcostal, a little before the apex; there are one or two marginal dots before the dirty white cilia which are also slightly dusted. *Exp. al.*, 11–12 mm. *Hindwings* and cilia brownish grey. *Abdomen* brownish grey. *Legs* dirty white.

Type, ♂ (96543); ♀ (96546). Mus. Wlsm.

Hab.: ALGERIA—Hammam-es-Salahin, 13.IV—18.V.1903; Biskra, 11–30.IV.1903. Twelve specimens.

Although in general appearance this species does not look distinct and cannot easily be separated by description from *cedestiella*, Z., and *sparsella*, de Joann., it is more robust than the former and lacks the median fascia, and it is a more chalky looking species with greyer markings than the latter. It is really quite distinct when series of each are compared.

3043 : 2.—SYMMOCA OBLITERATA, *sp. n.*

Antennae hoary grey. *Palpi* hoary white, dusted with greyish fuscous. *Head* hoary grey. *Thorax* hoary whitish, dusted with greyish fuscous. *Forewings* hoary greyish white, profusely speckled with greyish fuscous throughout, this is for the most part evenly distributed, but a line along the centre of the wing appears to be somewhat less obscured by the dark speckling, while a reduplicated transverse spot at the end of the cell is slightly indicated, a plical and another discal spot scarcely to be detected, their possible position being shown only by a slight increase of the dark dusting in each place; cilia hoary grey. *Exp. al.*, 11–13 mm. *Hindwings* bronzy grey, with brownish cinereous cilia. *Abdomen* bronzy greyish fuscous, anal tuft paler. *Legs* hoary greyish.

Type, ♂ (96534). Mus. Wlsm.

Hab.: ALGERIA.—Biskra, 25.III—2 IV.1903; Hammam-es-Salahin, 8–23.IV.1904, 17.V.1903. Thirty-one specimens.

Flies low in the early morning on rather bare ground. It has much the appearance of *Eremica saharae*, but is of a greyer colour and without any indication of transverse markings, its shading, if any, being always longitudinal.

3043 : 3.—SYMMOCA MOLITOR, *sp. n.*

Antennae pale brownish, hoary whitish towards the base. *Palpi* hoary whitish, the median joint shaded with black below towards its apex, the terminal with a black annulation before its apex. *Head* and *Thorax* hoary white, the latter with a black spot posteriorly. *Forewings* rather narrow, elongate, tapering to an obtusely rounded apex; hoary white, profusely sprinkled with black atoms which have a tendency to run in lines, especially along the upper edge of the cell, and from the

cell outward to the apex and termen; cilia brownish white. *Exp. al.*, 15 mm. *Hindwings* shining, brownish grey; cilia shining, pale brown. *Abdomen* brownish grey at the base, shading to pale brown posteriorly. *Legs* pale brownish cinereous.

Type, ♂ (96548). Mus. Wlsm.

Hab.: ALGERIA — El-Kantara, 27.IV. — 22.V.1903. Three specimens.

Perhaps most nearly allied to *obliterata*, but it is a larger species.

311.—APROAEREMA, Drnt.

= * *ANACAMPSIS*, Stgr.-Rbl. (nec Crt.).

2840 : 1.—APROAEREMA ZONARIELLA, *sp. n.*

Antennae black, with pale ochreous annulations not meeting on the upper side. *Palpi* pale ochreous, with two black lines along the terminal joint throughout. *Head* dark greyish fuscous; face ochreous. *Thorax* black. *Forewings* black, sparsely sprinkled with pale ochreous scales, which are slightly grouped in the fold a little beyond its middle and on the disc above and beyond; at the outer third of the wing-length is a straight, clearly defined, pale ochreous fascia, its outer edge somewhat jagged; cilia smoky brown, with some black scales projecting in their base. *Exp. al.*, 16 mm. *Hindwings* grey, with a brownish tinge; cilia smoky brown. *Abdomen* smoky fuscous. *Legs* brownish fuscous, with two tibial and four tarsal pale ochreous annulations.

Type: ♀ (96464). Mus. Wlsm.

Hab.: ALGERIA — Batna, 1.V.1903. Unique.

A very distinct species.

2840 : 2.—APROAEREMA MITRELLA, *sp. n.*

Antennae fuscous. *Palpi* hoary white, tipped with black. *Head* and face hoary grey. *Thorax* bronzy fuscous. *Forewings* elongate, acutely lanceolate; bronzy fuscous at the base, darkening to deep brownish fuscous towards the middle, clearly and straightly defined along the inner edge of a white transverse fascia, somewhat expanded outward from the dorsum to the costa; beyond this the dark brownish fuscous colouring is continued to the apex with bright shining pale steel-grey scales, each tipped with black, radiating outwards along the margins at the base of the brownish grey cilia. *Exp. al.*, 10 mm. *Hindwings* leaden grey; cilia pale brownish grey. *Abdomen* dark leaden grey, with pale anal tuft. *Legs* whitish, the ends of the tibiae and the terminal joints of the tarsi banded with brownish fuscous.

Type, ♂ (96467). Mus. Wlsm.

Hab.: ALGERIA — Biskra, 23.III; El-Kantara, 22.IV.1903; Hamnam-es-Salahin, 13.IV.1904. Three specimens.

Has much the appearance of *acanthyllidis*, but is a little larger and darker.

2847 : 1.—*APROAEREMA ACANTHYLLIDIS*, *sp. n.*

Antennae white beneath, black speckled with white above; basal joint slightly flattened and enlarged. *Palpi* white. *Head* and face white. *Thorax* olive-brown. *Forewings* pale olive brown at the base, shading to brownish fuscous a little beyond the middle, where this colour is abruptly terminated by a straight whitish ochreous fascia, narrow on the dorsum, wider and somewhat diffused outward above it to the costa; this fascia is of varying intensity, and in some varieties is almost entirely obliterated by a suffusion of the blackish scales which predominate usually beyond it on the apical fourth: the black scales in ordinary varieties are sprinkled thickly on olive-brown, and accompanied by shining steelly metallic scales, each tipped with black, which extend through the base of the grey cilia. *Exp. al.*, 8–9 mm. *Hindwings* with produced apex and deeply excised termen; pale bluish grey; cilia brownish grey. *Abdomen* brownish grey. *Legs* shining, brassy whitish, with a fuscous band at the end of the hind tibiae.

Type, ♂ (89469); ♀ (89475); var. ♂ (89470). Mus. Wlsm.

Hab.: ALGERIA—Biskra, 5.II.1897, 1–30.III.1894, 19–29.V.1894 (*Eaton*); 20.II—9.III.1903; El-Kantara, 5.V.; Hammam-es-Salahin, 23.III—25.IV.1904, 14.V.1903; Larva *Acanthyllis tragacanthoides*, 5.I. excl. 6–15.III.1904; 17.IV. excl. 12.V.1904 (*Wlsm.*). Forty-one specimens.

This species is abundant, and widely distributed among isolated plants of *Acanthyllis tragacanthoides*, from which I have since bred it; there would appear to be at least two broods. Mr. Eaton first met with it in 1894.

It is closely allied to *captivella*, Z., but differs in the outward widening of the fascia.

The genus *Aproaerema* is described as having in the forewings "6 sometimes out of 7 near base" (*Meyr., Busck.*). This definition would exclude *acanthyllidis* (and perhaps other species) in which 6 is emitted from the stalk of 7 and 8 near their furcation, moreover in some specimens (*e. g.*, 5854) 9 is sometimes connate with (6+7+8) or even stalked with them—thus, in this species at least, vein 9 is variable, being emitted from the radius before the end of the cell, connate with, or out of (6+7+8). In the hindwings 2 and 3 are connate from the end of the cubitus above which the cell is open; part of the discoidal occurs above lower media, emitting 5 angularly; 6 and 7 are stalked from radius to near apex. At first one would have felt inclined to make this species the type of a new genus, but it seems wiser to slightly extend the definition of *Aproaerema* to include such species as are obviously in a plastic condition, the variation being individual, not special.

2847 : 2.—*APROAEREMA THAUMALEA*, *sp. n.*

Antennae blackish, sprinkled with white. *Palpi* smooth, white, terminal joint as long as the median, with two slender lines of black scales throughout its length. *Head* greyish white; face shining white. *Thorax* cream-white, shaded with steel-grey. *Forewings* shining copper-brown, with a broad cream-white costal patch from the base nearly to the middle, produced outward at its lower extremity nearly to the outer end of the fold, its attenuated apex not reaching the dorsum; at the outer third a broad transverse cream-white fascia, throwing an angulated projection outward at its middle, and attenuated to the dorsum before the tornus, its inner edge clearly defined and slightly outward-curved; beyond it the coppery brown terminal area is thickly studded with brilliant steel-like scales, each narrowly tipped with jet-black, many of these project into the dull leaden grey cilia (recalling the form of the neck feathers of a *Thaumalea*). *Exp. al.*, 8-9 mm. *Hindwings* as broad as the forewings, the apex much produced from the deeply excised termen; whitish grey; cilia pale brownish grey. *Abdomen* shining steel-grey. *Legs* white, with slight tarsal spots, a single fuscous spot on the outer side of the tibiae.

Type, ♂ (96504). Mus. Wlsm.

Hab. : ALGERIA—Hammam-es-Salahin, Larva *Astragalus gombo*, 10.III—27.IV. excl. 15.IV.—14.V.1904; 15.V. excl. 1-13.VI 1903. Ten specimens.

This very distinct species agrees with *acanthyllidis* in emitting 6 and 9 of the forewings from the stalk of 7 + 8.

(To be continued).

SUFFOLK LEPIDOPTERA IN 1904.

BY THE REV. E. N. BLOOMFIELD, M.A., F.E.S.

I am again able to record a good number of interesting species taken in the County during the past season. For these I am indebted to the following correspondents, who have sent me lists of the rarer species taken by them and the localities in which they occurred. The Rev. A. P. Waller records captures at Hemley near Woodbridge, Messrs. H. Lingwood at Needham Market and Dunwich, Claude Morley at Barham and Blakenham, A. E. Gibbs at Orford, and Dr. Crowfoot near Beccles. Mrs. Mann, of Bungay, has sent me a full list of all the species met with by her in 1904 at Bungay and Flixton, and has also sent a list of the rarer species which had been taken by her in previous years, thus adding considerably to the County List. Both Mr. Waller and Mrs. Mann have made great use of their moth traps, and have taken many good insects in them.

Mr. C. G. Barrett, as usual, has most kindly confirmed or determined most of the Micros, Mr. Waller having sent him all that seemed doubtful; while he has also determined various species for Mrs. Mann.

Of the *Heterocera* I need only mention *Acherontia atropos*, L., at Hollesley, *Sphinx pinastri*, L., bred by Mrs. Mann from ova received from Aldringham, **Deilephila livornica*, Esp., taken at Felixstowe, September 1st, by G. P. Hope, Esq., Havering Grange, Romford, it had apparently just emerged from the pupa, *Chærocampa porcellus*, L., at Hemley and Bungay, **Nola centonalis*, Hb., one at light at Hemley, July 21st, *N. strigula*, Schiff., at Flixton, six specimens in 1902, *Lithosia quadra*, L., at Lowestoft, and *Petasia cassinea*, Hb., at Bungay.

The rarer *Noctua* to be recorded are **Leucania furicolor*, Barr., a beautiful specimen of the red variety taken at Hemley, September 10th, at light. Mr Waller first met with it in 1893, and took several in 1901, but it was then supposed to be a red form of *L. pallens*, and was not recorded. *L. obsoleta*, Hb., Needham Market, *Nonagria geminipuncta*, Hatch., three at sugar at Hemley, *Charixas graminis*, L., several on ragwort flowers by day at Orford, *Neuria reticulata*, Vill., two at sugar at Hemley, *Miana arcuosa*, Haw., Bungay, *Agrotis agathina*, Dup., Dunwich, *Trachea piniperda*, Esp., Hemley and Needham Market, **Dasyampa rubiginea*, F., two at Needham Market in the spring. Spring *Noctua* seem to have been rather plentiful at sallows. *Telhea retusa*, L., Bungay, August 9th, in the moth trap, *Dianthæcia conspersa*, Esp., several at Bungay and Lowestoft, **Plusia moneta*, F., one in the garden at Bungay, this species was taken some years ago at Battistord, but was not recorded, *P. festuæ*, L., in abundance in Mrs. Mann's garden, *Catocala fraxini*, L., p. 256 ante, and *Toxocampa pastinum*, Tr., at Lowestoft.

Of the *Geometræ* the best are *Pericallia syringaria*, L., several at Hemley, usually rare, *Ennomos fuscantaria*, Haw., Needham Market, *Acidalia emutaria*, Hb., one, and *Corycia taminata*, W. V., in plenty, both at Bungay, *Eupithecia renosata*, F., larvæ in the heads of Bladder Campion at Hemley, also at Bungay, *Lobophora rivetata*, Hb., Hemley, August 13th, *Camptogramma fluviala*, Hb., July 22nd, and *Anticlea dericata*, W. V., both at light at Bungay, *Coremia quadrifasciaria*, L., several at Hemley, usually very scarce there, *Cidaria sagittata*, F., Bungay, *C. picata*, Hb., several, and *Eubolia lineolata*, W. V., one in the moth trap at Hemley.

Pyalides—*Pyralis costalis*, F., at Bungay, *Cledeobia angustalis*, W. V., at Orford, *Acentropus niveus*, Oliv., two, June 8th, and **Scoparia resinæ*, Haw., in 1902, at Bungay.

Pterophori—*Platylitia gonodactyla*, Schiff., and *Leioptilus lienigianus*, Zell., at Hemley, and *L. microdactylus*, Hb., at Bungay.

Crambi—**Crambus alpinellus*, Hb., one at light, and *C. falsellus*, W. V., at Hemley, the latter also at Bungay; *Schænobius forficellus*, Thumb., *S. mucronellus*, F., W. V., in numbers in moth trap, *Rhodophæa formosa*, Haw., and *Ephestia ficulella*, Barr., 1901, all at Bungay; *R. marmorea*, Haw., Hemley, one at light, and five at light at Bungay, *R. suarella*, Zinck., and *R. advenella*, Zinck., also at Bungay.

Tortrices—*Tortrix diversana*, Hb., one at Hemley, **Leptogramma literana*, L., a fine grey variety at Bungay in 1903, *Peronea comparana*, Hb., several at light, and *Spilonota loriciana*, Zell., at Hemley, *Sericoris lacunana* var. **herbana*, Gn., at Beeches, and *Orthotenia antiquana*, Hb., not uncommon at light at Bungay, *O. striana*, W. V., at Hemley, *Pædisca sordidana*, Hb., at Bungay, *Retinia pinicotana*, Dbl., at Orford, *Dichrorampha saturnana*, Gn., and *Eupœcilia vectisana*, Westw.,

flying abundantly one afternoon in the salt marshes, at Hemley, **E. geyeriana*, H.-S., *E. degreyana*, McLach., and **E. ciliella*, Hb., 1902, all at Bungay.

Of the *Tineæ* I have a good list, of which many are new to the County. **Epigraphia steinkellneriana*, Schiff., at Bungay, 1902 and 1903, **Psyche* (*Epichnopteryx*) *reticella*, Newm., noticed by Mr. Waller among Marram grass near the river at Hemley in 1903 and again this year, a notable species; **Scardia arcella*, F., at light at Hemley and at Bungay, *Tinea lapella*, Hb., Bungay and Shadingfield, near Beccles, *T. semifulvella*, Haw., and *Swammerdamia comptella*, Hb., at Hemley, *S. spinella*, Hb., at Bungay, **Plutella porrectella*, L., the pale green larvæ were abundant feeding on the Sweet Rocket in the Rectory Garden at Hemley, the moths in June and August, also at Bungay. **Hyponomeuta vigintipunctatus*, Retz., Bungay, several in the moth trap, 1901-04, **Anesychia decemguttella*, Hb., 1901. **Harpipteryx scabrella*, L., 1902, **Orthotelia sparganella*, Thun., 1901-02, **Depressaria geatiana*, F., **D. pulcherrimella*, Stn., at Bungay; *Gelechia muscosella*, Zell., Beccles, 1903, *G. (Brachmia) mouffetella*, Schiff., and **G. (Lita) fraternella*, Dougl., at Bungay, *G. (Felia) fugitivella*, Zell., at Hemley, **G. (Doryphora) lutulentella*, Zell., and *G. tenuiolella*, Tr., Bungay, *G. (Nannodia) hermannella*, Fb., Hemley and Blakenham chalk pit, *G. (Ceratophora) rufescens*, Haw., and *Chelaria hübnerella*, Don., at light, at Hemley and Bungay, **Argyresthia mendica*, Haw., Barham and Bungay, **A. curvella*, L., **Coleophora fabriciella*, Vill., in the moth trap, both in 1903, and **Larerna ochraceella*, Curt., at Bungay, the latter also at Orford, *Chrysoclysta flavicaput*, Haw., and *Elachista laticornella*, Zell., at Hemley.

The species marked * are new to the Suffolk List.

Guestling Rectory, Hastings :

December, 1904.

Leucania faricolor, Barr., and *Epichnopteryx reticella*, Newm., in Suffolk.—The late Mr. Barrett had intended to send a special note on the extension of locality of these two species in Suffolk, but was prevented by his last illness; this he was about to do, "because *Leucania faricolor* has only been found in S. E. Suffolk and N. E. Essex, where these counties join, while *Epichnopteryx reticella* has occurred from Devon to Essex, but not hitherto in Suffolk or Norfolk." As Mr. Waller took his specimen of *L. faricolor* on September 10th it would seem that there was probably a second brood; his former captures were made in June and were large specimens.—E. N. BLOOMFIELD, Guestling Rectory: Dec., 1904.

Notes on a light-trap in Hertfordshire.—With reference to Mrs. H. E. Mann's note (*ante*, p. 10) on a moth-trap used at Ditchlingham, Suffolk, I may mention that as recorded in the Entomologist from time to time, I have used a trap here for some years. Since 1898 I have designed and constructed four traps, the present one being an improvement on all the others. Like the "Mandair" mine is not fitted with any killing apparatus, so that any specimens not required can be liberated in the morning.

At this one locality I have captured by this means over 300 different species of *Lepidoptera* (including only a few *Tineæ* as I have not worked that group), comprising 4 *Sphinges*, 29 *Bombyces*, 109 *Noctuæ*, 96 *Geometræ*, 70 *Pyralides*, *Crambi*, *Tortrices*, &c.

My trap is fitted to a first floor window, about 14 ft. from the ground and facing south-west. In this direction the ground slopes away from the house, and beyond the garden there are several fields and then woods.

The want of success with some traps is that they are placed too near the ground. I do not think that 20 ft. would be too high for the majority of species. The light should of course be as strong as possible. I generally use a large duplex lamp with strong reflector.

On one occasion I captured over fifty specimens of *Anchoecelis lunosa* in a single night, most of which were of course set free in the morning.

Among the better species taken the following may be named: *Charocampa porcellus*, *Sarothripus undulatus*, *Hylophila bicolorana*, *Lithosia griseola*, *Trichiura cratagi*, *Lasiocampa quercifolia*, *Drepana lacertula*, *D. binaria*, *Noto-donta dictyoides*, *Pygerra curtula*, *Thyatira batis*, *Dipterygia scabriuscula*, *Lupe-rina cespitis*, *Apamea gemina*, *A. unanimitis*, *A. ophiogramma*, *Agrotis puta*, *A. cinerea*, *A. porphyrea*, *Teniocampa gracilis*, *Orthosia suspecta*,* *Xanthia gilvago*, *Calymnia pyralina*, *C. diffinis*, *C. affinis*, *Hadena genistæ*, *Asteroscopus sphinx*, *Plusia moneta*, *P. pulchrina*, *Arentia flexula*, *Eurymene dolobraria*, *Pericallia syringaria*, *Selenia lunaria*, *Geometra papilionaria*, *Spilodes palealis*,* *Acipitilia spilodactylus*, *Crambus geniculeus*, *Enzophora pinguis*, *Phycis betulae*, *Rhodophea formosa*, *R. advenella*, *Hypochalcia ahenella*, *Galleria melonella*, *Aphomia sociella*, *Penthina ochroleucana*, *Carpocapsa splendana*, *Nanthosetia zægana*, *N. hamana*, &c.

The two marked with an asterisk have not been recorded from any other localities in Hertfordshire.

I shall be very pleased to compare notes and diagrams with any other entomologists who have had experience with moth-traps in other parts of the country.—
PHILIP J. BARRAUD, Bushey Heath, Herts: January 3rd, 1905.

The attitude of Satyrus semele at rest.—In the summer of 1903 Dr. Dixey called my attention to the observation by E. H. A. in "A Naturalist on the prowl" (p. 203) that *Melanitis ismene*, (Cram.), a common Indian butterfly, often settled upon fallen leaves and helped to conceal itself by falling partly on one side. Dr. Dixey was anxious to see whether there was among allied butterflies any tendency to such a habit upon which natural selection might work. Careful watching *Satyrus semele* satisfied us that it settles upon the ground "in three motions"—(1) the wings are brought together over the back; (2) the fore-wings are drawn between the hind-wings, so as to be for the most part concealed; (3) the whole insect is thrown over to one side to the extent of 30°, 40°, or even sometimes 50°. They appeared to go over to right or left indifferently.

Subsequently I imprisoned a number of butterflies in a large pasteboard box covered with a piece of glass. Under these conditions I observed that sometimes the third of the above described motions precedes the second. The insects assume the sideways attitude or "list" more frequently when settled in sunshine than in shadow—of this I am certain. This attitude is mentioned in Barrett's *Lepidoptera* (vol. i, p. 226).

Other Satyrids were observed in the same box. *Epinephele janira* often put on a list of 15° to 20°; *Pararge aegeria* and *megara* sometimes showed a "list" of 25°. Lastly, during the summer of 1904 several *E. hyperanthus*, when in the box, showed a "list" of about 20°.

My observations on Indian Satyrids will be found in a paper read before the Entomological Society of London, December 7th, 1904, which will I hope appear in the Transactions for 1905.—G. B. LONGSTAFF, Highlands, Putney Heath, S.W. : *January 11th, 1905.*

Harpalus discoideus, F., and *Metæcus paradoxus*, L., at Leighton Buzzard.—In a recent number of the Ent. Mo. Mag. (April, 1904), the capture of a black ♂, *Harpalus discoideus*, is recorded by Mr. Jennings from Brandon.

As bearing upon the variation in the colour of the male of this rare beetle, as well as for other considerations of interest, it may be well to give a few particulars of its appearance here.

During the past July, August, and September, I have succeeded in taking in this neighbourhood twenty-four examples of the ♂, together with which I was present when two or three more were taken by my brother, Mr. L. R. Crawshaw, and it is interesting to note that all without exception were bright green in colour. Nor does Canon Fowler in his "British Coleoptera" mention the black form of the ♂. I may add that ♀s occurred in about equal proportions to the ♂s, together amounting to fifty specimens. I do not know whether *H. discoideus* has previously been recorded from this part of Bedfordshire, though Canon Fowler mentions Woburn, 9 miles distant, and Sandy, on the other side of the county, as localities.

As to its habitat here, it seems to be partial to a cultivated sandy soil rather than heaths and poor sandy places, for, although my search for it had previously been directed especially towards the latter, two specimens only occurred there, while the remainder were taken on the borders of three different ploughed fields in which the remains of manure were visible, and which were occupied at the time by crops of a late potato. Mr. C. O. Waterhouse kindly looked over half of these specimens and confirmed them.

Of *Metæcus paradoxus*, L., one specimen, a ♂, beaten from a birch bush by my brother, Mr. L. R. Crawshaw, on September 3rd, 1902, revealed the presence of this species of beetle in the neighbourhood of Leighton Buzzard.

In 1903 further casual beating was without success. This year I resolved to search for it in wasps' nests, and met with the following results.

Out of five nests examined, four (*Vespa vulgaris*, Linn.), contained *Metæcus* in one stage or another of its existence, together with larvæ, pupæ, and imagines of wasps.

In the fifth nest (*Vespa germanica*, Fab.) from which the beetle was absent, all the cells but six had been vacated by the wasps, and nearly all the community were gone. The nests were situated on the borders of a wood, within three quarters of a mile of each other, and of the place where the original ♂ had been discovered.

The following particulars of these nests may be interesting:—

Community.	Destroyed.	Estimated number of wasps present.	<i>Metæcus paradoxus</i> present.
No. 1.— <i>Vespa vulgaris</i> , Linn.	Sept. 20th.....	5257.....	24 } 1 larva. 16 pupæ. 7 imagines.
No. 2.— <i>Vespa germanica</i> , Fab.	Sept. 20th.....	150.....	None.
No. 3.— <i>Vespa vulgaris</i> , Linn.	Oct. 4th.....	1500.....	9 } 3 pupæ. 6 imagines.
No. 4.— <i>Vespa vulgaris</i> , Linn.	Oct. 4th.....	300.....	1 pupa.
No. 5.— <i>Vespa vulgaris</i> , Linn.	Oct. 13th.....	2036.....	1 imago.

In some cases many of the wasps had left the community, and with them presumably most of the beetles, the latter being on the wing early in September. The imagines of *Metæcus* present were enclosed in sealed cells, and some of them seemed to have been dead some time. Nor do I think there remained sufficient warmth in the season to develop any of the pupæ.

On completing the digging out of the nearly empty comb of *Vespa germanica* on September 29th, nine days after the community had been destroyed, I observed a beetle on the wing, which I recognised as *Metæcus*, hovering round the trunk of an oak close to the wasps' nest. I knocked it down with my hat and captured it, a ♂. My brother then observed a ♀ on the same tree. She was searching the bark with her ovipositor and paused apparently to lay, though we did not see any eggs, for the bark contained deep crevices in which presumably they would be hidden if there were any. This ♀ my brother captured.

On October 4th, on revisiting the spot, I observed another ♀ *Metæcus* resting on the same tree on which the first was taken five days previously.

She did not appear to be laying or making any movement. The day was cold. Upon examination she appeared to me to have laid her eggs already for the abdomen was rather small and contracted. She died two days afterwards without laying in confinement.

It seems likely that both these ♀s laid at least a portion of their eggs on this tree, i.e., on living bark. Their close proximity to the nest of *Vespa germanica* would not be enough to establish any connection between them for, 100 yards away, was a nest of *Vespa vulgaris*, in which *Metæcus* was subsequently found, and whence the three beetles in question may have come. — GEORGE A. CRAWSHAY, Leighton Buzzard: November 9th, 1904.

Tetratoma fungorum, F., at Sherwood Forest.—In the third week of October last I took a considerable number of this fungus-feeding beetle; they all occurred either on the under-side of *Boleti* growing on birch, or in the root where the *Boletus* joins the tree. All were found on this year's growth of fungi; the most diligent search, however, completely failed in finding any trace of either larva or pupa in the old growth. Should this insect be a desideratum of any Coleopterist I shall be much pleased to supply specimens.—J. KIDSON TAYLOR, 35, South Avenue, Buxton: December 24th, 1904.

Clinocara tetratoma, Thoms., in Derbyshire.—On June 11th, 1904, I beat out of hazel, in Miller's Dale, a single specimen of this rather uncommon species; on the same day, also by beating hazel, an example of *Polydrusus micans* occurred to me. Of the former the only record for this district appears to be Repton, Burton-on-Trent (Garneys); and of the latter, Bretby Wood, Repton (Canon Fowler's British *Coleoptera*).—ID.

The flight of Rhizotrogus solstitialis, Linn.—With regard to the flight of *Rhizotrogus solstitialis*, L., referred to by Dr. Norman Joy (*ante* p. 17) in his interesting contribution to our knowledge of the habits of the rarer *R. ochraceus*, Knoch, I may mention that our commoner chafer also not infrequently flies by day

and often towards the close of the afternoon. In some years, during June and July "summer chafers" are very common in East Dorset, and are eagerly chased by poultry, which are very partial to them, and soon become adepts in their capture of them as the insects skim along a foot or so above the ground. I referred to this circumstance in notes to (I think) the "Naturalist's Journal," 1899, and "Science Gossip," January, 1900. I am unaware whether the chafers also circle round trees, high up, as described by Mr. Joy, but they would probably be found to do so.—E. J. B. SOPP: *January*, 1905.

Limotettix stactogala, Fieb., at Ryde.—The tamarisk bushes on the front at Ryde, I. W., contained this species in the greatest profusion, as I was enabled to observe from September 25th to October 9th this year, though a cursory examination of the same plant in similar situations at Cowes on October 8th failed to reveal a single individual. At the former locality the insect could be counted in its thousands; a thick hedge half a mile long was often covered with them, but their colour so well assimilated with that of their pabulum that they were quite inconspicuous. They often, I noticed, congregate in groups of eight or ten, and were on several occasions found *in cop.*; one spider's web, an inch and half in diameter, contained eleven examples. They appear to prefer the base of the outermost, though not the highest, shoots, and fly freely in the sunshine. On the later date, after a biting northerly breeze, their numbers were less, though their vitality appeared to have been but very slightly impaired. Mr. E. A. Butler, who first detected it in Britain (*cf.* Ent. Mo. Mag., 1902, p. 215), tells me that it was absolutely swarming where he found it, and that he expects it occurs in most places where tamarisk grows—though I have failed to find it in Suffolk.—CLAUDE MORLEY, Monks' Soham, Suffolk: *December*, 1904.

Schizoceros furcatus, Vill., at Chattenden Roughs.—Mr. Morice, when kindly looking over my saw-flies a short time ago, detected a specimen of this rare insect, taken by me at Chattenden Roughs in June, 1896, but overlooked until now. As its present occurrence in Britain has been doubted by him in his "Help Notes" he asked me to record it. My specimen is a male. An example (male) of the other species (*geminatus*, Gir.) was taken by Mr. Morice himself this spring when collecting with me on May 25th. It was sitting on the hedge in the valley below my house where so many rare insects have occurred.—A. J. CHITTY, Faversham: *January 1st*, 1905.

Limnophilus elegans in the Isle of Man.—In a box of *Trichoptera* recently sent to me for determination by Dr. R. T. Cassal, and taken by him in the Isle of Man during last season, I was delighted to see three specimens (all males) of the rare *Limnophilus elegans*. Dr. Cassal had taken them near Ballaugh, in the northern part of the Island, during the first fortnight in June. Old recorded localities for the species are the New Forest and Delamere Forest, but in recent years it seems only to have been taken at Rannoch, and there very sparingly. Its occurrence in the Isle of Man is very interesting.—GEO. T. PORRITT, Huddersfield: *Jan. 14th*, 1905.

Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: *October 17th*, 1904.—Mr. G. T. BETHUNE-BAKER, President, in the Chair.

Mr. J. T. Fountain showed *Callimorpha dominula*, L., from Devon, and gave an account of his difficulties in breeding them. Though treated in various ways he failed to find any way by which to avoid getting the greater portion crippled. He also showed *Lasiocampa quercus*, L., bred from larvæ taken in Sutton Park in March and April. They included light males and also dark ones, which were apparently var. *callunæ*, Palm.; also there were two of the dark ones with very diaphanous wings, though evidently perfect and with complete cilia to the wings, yet they looked as if rubbed, owing apparently to deficient sealing on the outer third of each wing. Mr. H. W. Ellis, a collection of *Rhynchophora*, &c., and gave a general account of them, and referred to the local records. Mr. R. C. Bradley, *Thriptocera bicolor*, Mg., three specimens bred from *Lasiocampa quercus* larvæ, from Sutton Park, by Mr. W. H. Williamson in 1904.

November 21st, 1904.—The President in the Chair.

Mr. A. H. Martineau exhibited from Mr. H. Stone, F.L.S., a collective cocoon made by some Lepidopterous larvæ. Information was lacking as to the species and its place of origin. It consisted of one large cocoon about 6" × 4", with a thick, hard brown integument containing a considerable number of ordinary brown cocoons massed inside. The pupæ were empty, but there was no obvious means of exit, and the interior was closely packed with the material of the cocoons so that it was not easy to judge how the moths had emerged. Mr. B. S. Searle showed *Lepidoptera* from various localities and a box of foreign *Coleoptera*. The Rev. C. F. Thornehill read a paper upon "The Genus *Eupithecia*, especially in relation to Breeding them from the Larvæ." He had given special attention to the genus and had reared a large proportion of the species at various times, and he gave a good deal of interesting information about the life-histories and habits of many of the species.—COLBRAN J. WAINWRIGHT, *Hon. Secretary*.

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY.—By the kindness of the Chester Society of Natural Science, an ordinary meeting was held in the Grosvenor Museum, Chester, on Monday, November 21st, 1904. Mr. RICHARD WILDING, Vice-President, in the Chair.

The following gentlemen were elected Members of the Society: Messrs. C. M. Adams, F.C.S. (Southport), Rd. S. Bagnall, F.E.S. (Winlaton-on-Tyne), J. H. Leyland (Ormskirk), W. C. Boyd (Cheshunt), John F. Dixon-Nuttall (Prescot), Rd. Hancock (Handsworth), and E. E. Lowe (Plymouth).

Mr. Robert Newstead, A.L.S., F.E.S., Hon. F.R.H.S., gave a most interesting lecture on "The Collections in the Grosvenor Museum," copiously illustrated with lantern slides; and, through the kindness of Mr. Newstead, the whole of the Museum was open to the inspection of Members, and the more interesting exhibits were explained by him. Amongst interesting exhibits examined during the evening were a living specimen of the male of *Lecanium hesperidum* shown by Mr. Newstead. This he had recently bred from a colony of Coccids which had been under observa-

tion for the past three or four years; the example being the first authentic one observed, although the male had been searched for since the time of Linnæus. Mr. J. J. Richardson exhibited a series of exotic *Lepidoptera* mounted in frames, with slips of glass so arranged as to allow of the examination of the under-sides. Mr. J. R. Charnley, F.E.S., showed 14 specimens of insects in amber from the North Coast of Germany, both the insects and clearness of some of the pieces of amber being much admired. *Anisotoma furva* from Crosby was exhibited by Mr. Wilding, and a selection of British *Lepidoptera* by Mr. W. Mansbridge, F.E.S., &c. —E. J. B. SOPP and J. R. le TOMLIN, *Hon. Secretaries*.

ENTOMOLOGICAL SOCIETY OF LONDON: *Wednesday, December 7th, 1904.*—Professor E. B. POULTON, M.A., D.Sc., F.R.S., President, in the Chair.

Mr. Horace A. Byatt, B.A., of the Colonial Office, and Mr. J. C. Winterscale, F.Z.S., of Karangan, Kedah, Penang, Straits Settlements, were elected Fellows of the Society.

Mr. H. St. J. Donisthorpe exhibited *Quedius nigrocæruleus*, taken by Mr. H. C. Dollman in a rabbit hole at Ditchling, Sussex, this being the fourth recorded British specimen. Professor T. Hudson Beare, a specimen of the rare Longicorn, *Tetropium castaneum*, L., taken about two years ago in the vicinity of the quays at Hartlepool, and probably introduced. Mr. G. J. Arrow, a series of *Passalidæ* from the Burchell Collection mentioned in his paper recently read before the Society, and remarked that Burchell had at the time of their capture some seventy years ago already noted their powers of producing a musical sound. Mr. C. O. Waterhouse, drawings prepared for exhibition in the Natural History Museum illustrating the development of the front wing in the pupa of the Tusser Silk Moth, showing the relation of the tracheæ to the veins; also some coffee berries from Uganda injured by a small beetle belonging to the *Scolytidæ*, and two Coleopterous larvæ from the Burchell Collection from Brazil, submitted to him for determination by Prof. Poulton. One was a Heteromerous larva two inches long, much resembling the larva of *Helops*; the more interesting one was noted by Burchell to be luminous, and appeared to be the larva of an Elaterid. Mr. J. J. Walker, the type-specimen of *Haplothorax burchelli*, G. R. Waterhouse, from the Hope Collection, Oxford University Museum, a remarkable Carabid discovered by Burchell in St. Helena; it is now exceedingly rare in its sole locality, the late Mr. Wollaston, during his visit to the island in 1875-6, having entirely failed to find the beetle alive, though its dead and mutilated remains were often met with. The President, cases showing the results of breeding experiments upon *Papilio cenea* conducted by Mr. G. F. Leigh, who had for the first time bred the *trophonius* form from *trophonius* itself; also a photograph, taken by Mr. Alfred Robinson of the Oxford University Museum, showing the *Xylocopid* model and its *Asilid* mimic exhibited by Mr. E. E. Green at a previous meeting; the example was particularly interesting, inasmuch as Mr. Green's record of the mimic circling round its model tended to support the view that the bee is the prey of the fly.

Dr. T. A. Chapman read a paper on *Erebia palarica*, n. sp., and *Erebia stygne*, chiefly in regard to its association with *E. evias* in Spain; describing *Erebia palarica*, he said it was a new species from the Cantabrian range, phylogenetically a

recent offshoot of *E. stygne*, and the largest and most brilliant in colouring of all the known members of the family.

Dr. G. B. Longstaff gave an account of his entomological experiences during a tour through India and Ceylon, October 10th, 1903, to March 10th, 1904, illustrating his remarks by exhibiting some of the insects referred to, and lantern slides of the localities visited.

Wednesday, January 18th, 1905: THE 71ST ANNUAL MEETING—The President in the Chair.

After an abstract of the Treasurer's accounts, showing a good balance in the Society's favour, had been read by one of the Auditors, Mr. Herbert Goss, one of the Secretaries, read the Report of the Council. It was then announced that the following had been elected Officers and Council for the Session 1905-1906. President, Mr. Frederic Merrifield; Treasurer, Mr. Albert H. Jones; Secretaries, Mr. H. Rowland-Brown, M.A., and Commander James J. Walker, R.N., F.L.S.; Librarian, Mr. George C. Champion, F.Z.S.; and as other Members of the Council, Mr. Gilbert J. Arrow, Lieut.-Colonel Charles Bingham, F.Z.S., Dr. Thomas A. Chapman, F.Z.S., Mr. James Edward Collin, Dr. Frederick A. Dixey, M.A., Mr. Hamilton H. C. J. Druce, F.Z.S., Mr. Herbert Goss, F.L.S., Mr. William John Lucas, B.A., Professor Edward B. Poulton, D.Sc., F.R.S., Mr. Louis B. Prout, Mr. Edward Saunders, F.R.S., F.L.S., and Colonel John W. Yerbury, R.A., F.Z.S.

The President referred to the loss sustained by the Society by the deaths of the Treasurer, Mr. Robert McLachlan, F.R.S., Mr. Charles G. Barrett, and other Entomologists. He then delivered an Address, in which he discussed the part played by the study of insects in the great controversy on the question, "Are acquired habits hereditary?" He argued that the decision whether Lamarck's theory of the causes of evolution is or is not founded on a mistaken assumption largely depends upon evidence supplied by the insect world, and finally concluded that the whole body of facts strongly supports Weismann's conclusions. At the end of his Address the President urged that the study of insects is essential for the elucidation and solution of problems of the widest interest and the deepest significance. Prof. Meldola, F.R.S., proposed a vote of thanks to the President and other Officers; this was seconded by Mr. Verrall, and carried.—H. Goss, *Hon. Secretary*.

LIST OF BRITISH *DOLICHOPODIDÆ*, WITH TABLES AND NOTES.

BY G. H. VERRALL, F.E.S.

(Continued from vol. xl, page 245).

1. *H. gracilis* Stann.: this large and very distinct species occurred in abundance in Wicken Fen in July, 1875, and I have found it also at Tuddenham and Brandon, both of which are within a few miles of Wicken. Away from this neighbourhood I have taken it at Penzance in Cornwall and at Ravensglass in Cumberland.
2. *H. cretifer* Walk.: not uncommon in Cornwall and in the Lake District.

3. *H. germanus* Wied. : I cannot satisfactorily distinguish this at present from the next species, but I believe they are two distinct species, and that both occur in Britain.
4. *H. chærophylli* Meig. : a small common species, which often occurs in abundance on the flowers of *Umbelliferae*.
5. *H. nigriplantis* Stann. : the only place where I have found this is Snailwell in Cambridgeshire, where it used to be not uncommon from June to September on a wooden sluice down which water was running. Col. Yerbury has taken one specimen at Porthcawl in Glamorgan, and Mr. C. G. Lamb one at Wells in Somerset.
6. *H. nigripennis* Fall. : a small blackish species, with a rather long proboscis, very similar to *Orthochile*, but its proboscis is not nearly so long as that of *Orthochile*. Common from Cornwall to the Highlands of Scotland.
7. *H. chrysozygos* Wied. : this very pretty and very distinct species was abundant at Wicken in July, 1875, even occurring in ditches close to "The Five Miles from Anywhere." I have since taken it at Chippenham Fen, and even on a window in this house.
8. *H. plagiatus* Lw. : I introduced this species as British on a specimen taken at Abbey Wood in Kent on July 24th, 1870, and a few specimens have since occurred at Upware and Tuddenham near here.
9. *H. fulvicaudis* Walk. : this still remains recorded as British from only a single male found near Bristol, and taken probably at least 70 years ago ; that is, however, the specimen from which the species was originally described. It has since been recorded as not uncommon in Germany, and I possess several specimens from Mecklenburg, while Kowarz has recorded it from Hungary.
10. *H. atrovirens* Lw. : I caught one male at Footscray in Kent on July 7th, 1869, and Dr. D. Sharp took a female in the New Forest in June, 1902.
11. *H. parvilamellatus* Macq. : I took a few specimens at Blackboys in Sussex on June 15th, 1876.
12. *H. nanus* Macq. : various localities in Sussex, Surrey, Cambs., Suffolk and Norfolk.

9. *HYPOPHYLLUS* Lw.

- 1 (2) Front tarsi with last joint very much dilated1. *discipes* Ahr.
 2 (1) Front tarsi simple2. *obscurellus* Fall.
1. *H. discipes* Ahr.: I caught a male in July, 1880, which is labelled "Snailwell?". I do not know why I put the ?, as I believe I know exactly where I took it; possibly it is the date which is doubtful. I caught a female at Bowness in Westmorland on June 23rd, 1889, which almost certainly belongs to this species.
2. *H. obscurellus* Fall.: easily recognised by its long yellow genitalia. It has occurred in numerous localities from Slapton Leigh to Inveran.

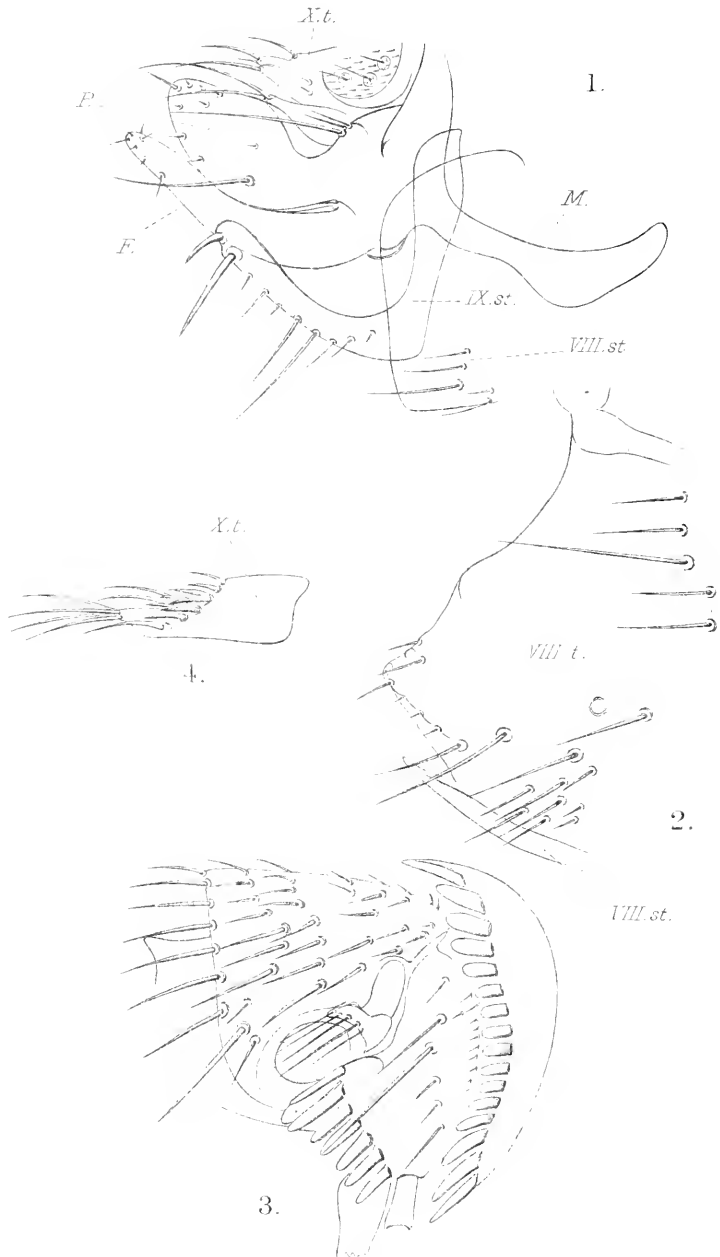
10. *ORTHOCHILE* Latr.

- O. nigrocærulea* Latr.: I took a pair at Leigh in Essex on June 18th, 1871, and a male at Lee in Kent on June 15th, 1875; more recently I took a specimen at Wicken on June 27th, 1903, and Mr. F. Jenkinson has taken several specimens in and near Cambridge.

11. *GYMNOPTERNUS* Lw.

All the species have black postocular cilia and black fringed squamæ.

- 1 (2) Femora mainly blackish; middle tibiæ thickened and twisted at tip...
 1. *cupreus* Fall.
- 2 (1) Femora yellow, or almost so.
- 3 (4) Costa dilated on a streak near base2. *celer* Meig.
- 4 (3) Costa normal.
- 5 (8) Moderate sized species.
- 6 (7) Antennæ wholly black; blackish-green species.....3. *metallicus* Stann.
- 7 (6) Antennæ pale at extreme base; steel-blue species...4. *chalybæus* Wied.
- 8 (5) Small species.
- 9 (10) Face white5. *assimilis* Stæg.
- 10 (9) Face black6. *aerosus* Fall.
1. *G. cupreus* Fall.: a common species, easily known by its black femora, and the peculiar dilated and twisted tip of the middle tibiæ of the male.
2. *G. celer* Meig.: also a common species, easily recognised by the costa of the male being swollen for a rather long space near the base.
3. *G. metallicus* Stann.: I first found this in abundance in Epping Forest on June 16th, 1872, and I have since taken it in Sussex, Suffolk, and Norfolk.



4. *G. chalybæus* Wied.: when I first caught this, at Ormesby Broad in June, 1880, I at once concluded that it was new to Britain, because of its brilliant steel-blue colour. It was not at all uncommon there, and I have since taken it at Lyminster, Hants. The blackish hind tibiæ distinguish it in both sexes.
5. *G. assimilis* Stæg.: not uncommon near Upware (but not in Wicken Fen) in July, 1875. I have also taken it at Chippenham Fen, in the Norfolk Broads, and at Rannoch.
6. *G. ærosus* Fall.: the commonest small species over all Britain, and easily known by the black face of the male. The femora are always rather darkened above, but a common variety (*G. Dahlbomi* Zett.) has the femora, especially the front pair, considerably more obscured. The var. is most common in Scotland, and, as Zetterstedt observed, seems to be a little larger than typical *G. ærosus*.

12. *LAMPROCHROMUS* Mik

This genus may be allied to *Gymnopternus*, where its acrostical bristles would place it; or, as is more commonly considered the case, to *Sympygenus*.

L. elegans Meig.: very uncommon at present, though possibly from its being overlooked. I have taken single males at Lyndhurst, Landport near Lewes, Wicken, and I think one female at Wisbech.

13. *CHRYSTOTUS* Meig.

These very small bright green flies are abundant, but in many cases are very difficult to name with certainty. Wherever a species occurs it is usually in abundance, and consequently series of good specimens should be taken in promising spots. Our twelve species comprise all except five or six of those known to occur in Europe, and two or three more may occur in Britain. A small species, very near *C. gramineus*, has occurred in Norfolk amber.

- 1 (4) Femora mainly yellow.
- 2 (3) Femora all yellow; front coxæ with black hairs; comparatively large species 1. *neglectus* Wied.
- 3 (2) Hind femora black at tip; front coxæ with yellow hairs; small species...
2. *cilipes* Meig.
- 4 (1) Femora mainly black.
- 5 (8) Hind trochanters and base of femora yellow.
- 6 (7) Small species; hind tibiæ moderately ciliated 3. *pulchellus* Kow.

- 7 (6) Fair sized species; hind tibiæ strongly ciliated4. *femoratus* Zett.
- 8 (5) Hind trochanters black or brown, base of hind femora not yellow.
- 9 (12) Front coxæ with only pale hairs.
- 10 (11) Face (♂) very narrow but continuous, silvery-white; palpi small, whitish...
5. *palustris* Verr.
- 11 (10) Face (♂) broad, greenish-grey; palpi large, black; acrostichal bristles
almost absent 6. *læsus* Wied.
- 12 (9) Front coxæ with black hairs.
- 13 (18) Legs mainly black, *i.e.*, tibiæ may be brownish but never yellow.
- 14 (15) Usual bristles on posterior tibiæ very faint; front coxæ conspicuously
dirty whitish.....7. *cupreus* Macq.
- 15 (14) Usual bristles on posterior tibiæ normally conspicuous; front coxæ not
much, if at all, dirty whitish.
- 16 (17) Face (♂) dull pale green, continuous as the eyes are obviously though
narrowly separated; antennæ large 8. *amplicornis* Zett.
- 17 (16) Face mainly concealed by the touching eyes; front and hind tibiæ con-
siderably ciliated9. *blepharosceles* Kow.
- 18 (13) Legs considerably yellow on at least anterior tibiæ.
- 19 (20) Middle tibiæ bearing only one distinct bristle; very small species ..
10. *monochætus* Kow.
- 20 (19) Middle tibiæ with the usual two bristles, the lower one being small.
- 21 (22) Third antennal joint small and rounded; small species; hind tibiæ usually
reddish11. *microcerus* Kow.
- 22 (21) Third antennal joint not very small; not very small species; hind tibiæ
usually blackish.
- 23 (24) Third antennal joint moderately rounded; colour bright...
12. *gramineus* Fall.
- 24 (23) Third antennal joint angulated at the tip; colour dark...
13. *angulicornis* Kow.

1. *C. neglectus* Wied.: generally distributed all over Britain.
2. *C. cilipes* Meig.: the habits of this species seem just the reverse
of those of *C. neglectus*, as it is local but abundant wherever
it occurs. I have found it in a few localities ranging from
the New Forest to the Lake District.
3. *C. pulchellus* Kow.: this species was introduced as British from a
pair taken at Rannoch on June 25th, 1870.
4. *C. femoratus* Zett.: Col. Yerbury took several specimens of this
species at Nairn from July 4th to 19th, 1904, and I think
one female at The Mound on July 2nd. I had almost intro-
duced it as British before on some specimens taken by Mr.
C. G. Lamb and Dr. D. Sharp in the New Forest in the
summers of 1901 and 1902, and I am now convinced that I
had correctly identified those specimens.

5. *C. palustris* Verr.: I described this species from three males and eight females taken at Seaford on August 25th, 1875; I caught one more female there on August 8th, 1878. My specimens were nearly all in bad condition, and I had almost come to the conclusion that they must belong to *C. suavis* Lw. but the capture of a male in very good condition by Col. Yerbury at Porthcawl on June 8th, 1903, has proved it to be abundantly distinct.
6. *C. læsus* Wied.: a very well distinguished species, being rather aberrant from the genus *Chrysotus*, through its wide face in both sexes, and the almost obliteration of the acrochaetal bristles. Not uncommon from Sussex to Suffolk, and Col. Yerbury has taken it at Porthcawl.
7. *C. cupreus* Macq.: well distinguished by the dirty whitish front coxæ and trochanters, and better still by the minuteness of the usual bristles on the posterior tibiæ. I have taken it at numerous localities from Sussex to Norfolk, and it has occurred in my garden; I have also seen it from Herefordshire. Great care is necessary in distinguishing it from the next two species. Our British specimens are as a rule much smaller than those taken on the continent, and possibly may be distinct, especially as I took four specimens (including a pair *in cop.*) at Three Bridges in Sussex in June, 1892, which are fully as large as the continental specimens, and I have seen no intermediates; I cannot, however, detect any other distinction.
8. *C. amplicornis* Zett.: resembling *C. læsus* in size and colour, but easily distinguished by the characters given in the table. I believe it is not uncommon in the New Forest, and I have records from Dolgelley and Windermere. Col. Yerbury has taken it at Brodie and Nethy Bridge.
9. *C. blepharosceles* Kow.: I first caught two males and three females of this species near Penzance on July 8th, 1871, and I recognised it near Teignmouth on June 11th, 1883, when I took several males, one of which was submitted to Kowarz, who confirmed its identification; since then Col. Yerbury has taken it at Ledbury in Herefordshire and at Porthcawl in Glamorgan, and Mr. Jenkinson in the New Forest and at Cambridge. It is comparatively easily separated from the previous species by its black haired front coxæ, largish size,

touching eyes of the male, and its almost entirely black front coxæ; beyond these characters it is distinguished from *C. cupreus* by its much more bristly and more ciliate front and hind tibiæ. For many years I considered a number of specimens caught at Totland Bay in the Isle of Wight as distinct, and it is possible that they are *C. melampodius* Lw. which is only known from Sicily, but while I think they are brighter green than either *C. blepharosceles* or *C. melampodius*, I think they must have more ciliate tibiæ than *C. melampodius*, and the front coxæ more tending to dirty whitish than either, though not so much as in *C. cupreus*. At present I refrain from separating them from *C. blepharosceles*, though similar specimens have been taken by Dr. D. Sharp in the New Forest.

10. *C. monochætus*, Kow.: I am obliged to refer to this species a very small female taken at Abbey Wood near Erith on July 17th, 1874.
11. *C. microcerus* Kow.: I originally introduced this species as British from a few specimens taken at Waterbeach in Cambridgeshire, and not as I then stated from Upware which is a short distance away on the other side of the Cam. I am still of opinion that they were correctly identified, and Kowarz himself has corroborated one of the specimens. I think the species is slightly smaller than its allies, but none of the British specimens show any sign of reddish basal joints of the antennæ. I have since taken similar specimens at Upware, Brandon and Thetford, all of which are within a few miles of Waterbeach.
12. *C. gramineus* Fall.: I still have no doubt about this being the very common little species, distinguished by its bright colour, moderately small and moderately blunt antennæ, and distinctly ciliated hind tibiæ. I believe it occurs freely from Penzance to Rannoch, but in searching for the closely allied species I have allowed my series to get into a very unsatisfactory state; as, however, it used to occur on the leaves of currant bushes in my garden I may probably renew my series. I think it possible that it occurs in much drier localities than its allies.
13. *C. angulicornis* Kow.: I included this species in the Second Edition of my List of British *Diptera* on the strength of a number of specimens taken at Lynton in North Devon on June 20th, 1883. The species is one of the largest of the "*gramineus*" group, and has the antennæ of the male with the third joint rather longer and distinctly more pointed.

In order to test myself I mixed up together all my males of this group, and as a result all the seven Lynton specimens were separated from the rest without my being able to see the locality labels; I also took one female, which sex is at present undescribed, but I will not attempt to give its distinctive characters without more material. It is most probable that Kowarz's *O. varians* also occurs among the unidentified specimens of this group, but I do not sufficiently recognise it at present.

(To be continued).

TWO ADDITIONAL BRITISH SPECIES OF THE DIPTEROUS GENUS *ERIGONE*, ROB.-DESV.

BY ERNEST E. AUSTEN.

In the course of re-arranging the *Muscidæ* (*sensû latiore*) in the General Collection of *Diptera* in the British Museum, the writer has had occasion to examine a series of British specimens of the above-mentioned genus, recently collected and presented by Lieut.-Colonel Yerbury. The result of this examination shows that *Erigone pectinata*, Girschner, and *E. truncata*, Ztt., must be added to the British List; while *E. intermedia*, Ztt., which is given in italics in Verrall's "List of British *Diptera*," 2nd Ed. (1901), p. 25, must be confirmed. *Erigone intermedia* was introduced (under *Nemoræa*) by the late Mr. Meade (Ent. Mo. Mag., ser. 2, vol. ii, 1891, p. 232), who had identified two males from Mr. F. Walker's collection as belonging to this species.

Erigone (*Echinosoma*) *pectinata*, Girschner (Entomologische Nachrichten, vii, Jahrg., 1881, pp 277-279, Fig. I *a-c*), of which a single ♀ was taken by Col. Yerbury at Tarrington, Herefordshire, on August 1st, 1902, really belongs, owing to the elongation of the second joint of the antennæ, to the genus *Eurythia*, Rob.-Desv. This has been pointed out by Girschner himself (Wiener Entomologische Zeitung, xvii, Jahrg., 1898, p. 151), and by Brauer (SB. K. Akad. Wiss. Wien, math.-naturw. Cl., Bd. cvii, 1898, p. 531). For the classification of our limited British fauna, however, it will suffice to follow the scheme given by Brauer in the Verhandlungen der k. k. zoologisch-botanischen Gesellschaft in Wien, Jahrgang 1893, p. 513, where *Eurythia* is regarded as a sub-genus of *Erigone*. *E. pectinata* was originally described from the ♀, and unfortunately the ♂ appears to be still unknown. As pointed out by Girschner in his original paper (Ent. Nachr., 1881, p. 277), the ♀ exhibits a deceptive resem-

blance to a *Sarcophaga*, which is perhaps increased by the fact that the bend of the fourth vein is provided with a short appendix,—in this case, however, a genuine stump, not a fold (*Zinkenfalte* of German authors) as in *Sarcophaga*. The ♀ from Tarrington is 10 mm. in length, and the shimmering pollinose patches on the æneous abdomen are very conspicuous in different positions; in this specimen the second and third joints of the antenna are approximately equal in length: the scutellum, as indicated by Girschner, is entirely dark. A remarkable characteristic of *E. pectinata*, in the ♀ sex at any rate, is the absence of fronto-orbital bristles from the middle area of the front; this has already been alluded to, although somewhat vaguely, by Girschner (Wien. Ent. Z., 1898, p. 152). In the Museum specimen, after the two uppermost fronto-orbital bristles, there is a gap, which is filled merely by fine hairs, and the bristles only re-appear about 1 or $1\frac{1}{2}$ mm. above the base of the antennæ. For further notes on this species the reader should consult Girschner (Wien. Ent. Z., *loc. cit.*).

Of *Erigone intermedia*, Ztt., Col. Yerbury took three ♂♂ and three ♀♀ at Porthcawl, Glamorganshire, South Wales, between May 12 and July 1, 1903 inclusive. This is a blackish species of moderate size (length 8 to 9 mm.) with faint bands of greyish pollen on the abdominal segments from the second to the fourth, and with the front tarsi but little expanded in the ♀. All of the specimens taken by Col. Yerbury show a very small appendix at the bend of the fourth vein, as also a small costal spine.

Erigone truncata, Ztt., is represented by a series of seventeen specimens, of which eleven (eight ♂♂, and three ♀♀) were taken at Aviemore, Inverness-shire, between May 19 and July 5, 1904, inclusive; the remainder include a ♂ from Glenmore, Inverness-shire, June 1, 1904; two ♂♂ and two ♀♀ from Golspie, Sutherlandshire, July 11–29, 1904; and a single ♀ from Porthcawl, Glamorganshire, June 4, 1903. The length of the ♂♂ varies from 7 to 9 mm., that of the ♀♀ from about 8 to $9\frac{1}{2}$ mm. This is a rather pretty little species, which may be recognised by the broad bands of silvery-grey pollen on the abdominal segments from the second to the fourth; these bands occupy rather more than the anterior half of each segment, though towards the middle line they become less distinct in certain lights. The species is further distinguished by the elongation of the second joint of the arista, and by the great breadth of the third joint of the antenna in the ♂. There is a well-marked appendix to the bend of the fourth vein, and a conspicuous costal spine. It is pointed out by

Girschner (Wien. Ent. Z., 1898, p. 152) that additional diagnostic characters are furnished by the presence of an anterior intra-alar bristle, and by the colour of the frontal stripe (*Stirnstrieme*); in certain positions the whole of the front, including the frontal stripe, appears whitish or cinereous. The ♀ is remarkable for the fact that the front tarsi are scarcely, if at all, expanded.

In Verrall's "List of British *Diptera*," 2nd Ed., Dec. 1901, p. 25, *Erigone appendiculata*, Macq., is among the species given in italics as requiring confirmation Brauer (SB. K. Akad. Wiss., &c., Bd. cvii, p. 540) mentions the species in question as a possible synonym of *E. truncata*, Ztt.; but if we rely upon Macquart's original figures of the head and antenna of the ♂ of his species (Ann. Soc. Ent. Fr., II, T. 6, 1848, Pl. 6, Figs. 3, 3a) this cannot be so, since the third joint of the antenna is apparently not expanded at all. Again, the species introduced by the late Mr. Meade (Ent. Mo. Mag., 2 ser., vol. ii, 1891, pp. 230-231) as *Nemoræa appendiculata*, Macq., and determined from a single ♂ in Mr. Dale's collection, must also be distinct, since Meade states that the scutellum is "quite black," whereas in *E. truncata*, Ztt., it is conspicuously redish on the distal half.

It is hoped that the facts thus briefly set forth may serve to establish the right of the two species forming the main subject of this paper to be regarded as real additions to the List of British *Diptera*, and British students of the Order will doubtless agree that the indefatigable collector to whose efforts the additions are due, is heartily to be congratulated upon the result.

Those who wish to make a further study of the difficult genus *Erigone*, should on no account neglect Brauer's paper (SB. K. Akad. Wiss. Wien., math.-naturw. Cl., Bd. cvii, 1898, pp. 530-540), to which reference has already been made above, and without which the present contribution would have been impossible. A tabular system is adopted, enabling many species to be determined, the identity of which might otherwise remain doubtful, while the paper concludes with an "Alphabetical List of the Species of the Group *Erigone*, and their probable Synonymy." One somewhat disconcerting result of Brauer's statements may be pointed out in closing these remarks. According to Brauer (*loc. cit.*, p. 542) *Tachina strenua*, Mg., is a synonym of *T. rudis*, Fln., which, *apud* Brauer, is the type of the genus *Panzeria*, Rob.-Desv.; *Panzeria lateralis*, Rob.-Desv. (Essai sur les Myodaires, p. 69, 1830), being also a synonym. So far as may be judged from a careful comparison of the original descriptions, Brauer's conclusion as to the synonymy is sound, and it follows that the *Erigone strenua* of Verrall's List (the largest of our

British species of the genus), must henceforth be termed *E. rudis*, Fln., while for the species indicated by the latter name in the List another designation must be found. The species hitherto regarded by the writer as *E. rudis*, Fln., and so labelled by him in the Museum collection of British *Diptera*, clearly also belongs to *Panzeria*, according to Brauer's diagnosis (although the front in the ♂ is much wider), and it is very closely allied to *P. rudis*, Fln. (*strenua*, Mg.). From the latter species, however, it may at once be distinguished by its much smaller size, by the wider front of the ♂, and by the narrower and differently shaped second and following joints of the front tarsi in the ♀. Unfortunately the *E. rudis* of our collection (and presumably also of Verrall's List) is *indeterminable by Brauer's paper*. But, *apud* Brauer (*loc. cit.*, p. 542) *Nemoræa rudis*, Schin., which the present species was supposed to be. = *consobrina*, Mg., which is a true *Erigone* (with stout frontal bristles, &c.), and is placed by Brauer (*loc. cit.*, p. 534) after *E. radicum*, Fln. It has already been stated, however, that our enigmatical species belongs, with the true *E. rudis*, Fln., to what was termed by Brauer in his classification of 1893 (Verh. z.-b. Ges. Wien, 1893, p. 513), the "sub-genus" *Panzeria*.

British Museum (Natural History),
Cromwell Road, London, S.W. :
January 12th, 1905.

NOTES ON *STEPHANOCIRCUS DASYURI*, SKUSE, AND *STEPHANOCIRCUS SIMSONI*, SP. NOV.

BY THE HON. N. CHARLES ROTHSCHILD, M.A., F.L.S.

PL. I.

Skuse¹ described *S. dasyuri* from specimens collected from the Australian Tiger-cat, *Dasyurus maculatus*, Kerr. The genus and species in question were founded on specimens representing two genera and two species. One of the species, of which Skuse possessed both sexes, is probably the one described by us under the name of *Ceratophyllus hilli*,² while the other, of which Skuse possessed only females, represents the species now generally recognised as *S. dasyuri*. Some considerable controversy on the subject of this insect has appeared from time to time, and an admirable epitome of it (giving full references) has been published by Mr. W. J. Rainbow.³ Mr. Carl F. Baker⁴ has recently made several remarks on the genus

1. Rec. Aust. Mus., ii, 5, p. 78, pl. xvii (1893).
2. Novit. Zool. xi, p. 622, pl. xi, figs. 43, 44 (1901).
3. Rec. Aust. Mus., v, 1, pp. 53-55 (1903).
4. Proc. U.S. Nat. Mus., xxvii, pp. 430, 431 (1904).

Stephanocircus, which, together with those of Mr. Rainbow, present, in our opinion, all the important published facts in connection with the present species.

During the last few years we have described no less than three new species of fleas belonging to this genus,⁵ but all from female specimens; and no male of any of the species belonging to the genus *Stephanocircus* has as yet been described. Through the kindness of Mr. A. Simson, of Launceston, Tasmania, we have received one male and seven females of *S. dasyuri*, and one male and one female of a second species closely allied to *S. dasyuri*, but quite distinct, which we describe for the first time in the present article.

The specimens of *S. dasyuri* were taken from the following hosts:—*Mus velutinus*, *Perameles gunni*, and *Dasyurus maculatus*. The last-mentioned host also yielded one male and one female of *Ceratophyllus hilli*. The two specimens of *S. simsoni* were taken off *Mus velutinus* and *Dasyurus maculatus*.

1.—STEPHANOCIRCUS DASYURI, Skuse (Pl. I, figs. 1, 4).

The antennæ have eleven segments, and the maxillary and labial palpi have four and five segments respectively. The male is of special interest, as the sexual organs show a close affinity to *Hystrihoposylla*. The eighth tergite of the male of *S. dasyuri* is narrow above, but gradually widens laterally. The eighth sternite, which is very shallowly emarginate has a uniform breadth equal to that of the ventral portion of the eighth tergite. This sternite bears a row of three bristles and two additional hairs on each side. The clasper (Pl. I, fig. 1) is large. It is sinuate dorsally near the base, and bears one very long and two short bristles proximally of the sinus. The irregularly elliptical distal flap-like process (P) of the clasper bears one long lateral bristle and two apical ones, of which latter the upper one is short. There are, in addition, a number of minute hairs near the edges. The finger (F) is not quite so long as the clasper. It is slender and slightly curved, gradually becoming narrower towards the apex, and bearing a number of small hairs at the ventral and apical edges. The manubrium (M) is broader in the middle than at the base. Its upper edge is nearly evenly curved. The external portion of the ninth sternite is not divided mesially. It is slender and somewhat curved, bearing on each side at the apex a short spine, and close behind this a long one. Further towards the base there are two long bristles, and close to these several shorter ones. Between the long bristles and the spines there are three thin hairs. The tenth tergite (Pl. I, fig. 4) bears only a very few bristles.

2.—STEPHANOCIRCUS SIMSONI, *sp. nov.* (Pl. I, figs. 2, 3, 5).

Head.—The head of the ♂ is, unfortunately, missing. Our description is therefore taken from the ♀ (Pl. I, fig. 3). The helmet is rounded in front, especially in the upper half. It bears a comb of fifteen spines on each side and a row of very

5. *S. mars*, Novit. Zool., v, p. 544, pl. xvi, fig. 11 (1898).
S. thomasi, Novit. Zool., x, pp. 318–319, pl. ix, figs. 4, 5 (1903).
S. minerva, Novit. Zool., x, p. 319, pl. ix, figs. 6, 7 (1903).

small hairs. There are seven genal spines. Between the antennal groove and the helmet there are two rows of bristles, the first containing about a dozen small ones, and the second seven bristles, of which the third from the top is very long. There are five rows of stout bristles on the occiput, as well as some additional bristles. The rostrum is slightly longer than in *S. dasyuri*.

Thorax.—The pronotum bears two rows of bristles, and a comb of twenty-five or twenty-six spines. There are three regular rows of bristles on the meso- and the metanotum, the former having in addition two dorsal sub-apical slender spines on each side. The metathoracic epimerum bears two rows of bristles as in *S. dasyuri*, but the first row contains more bristles, there being in this row in the ♂ of *S. simsoni* six, and in the ♀ eight bristles.

Abdomen.—The tergites one to six bear each two rows of bristles. The seventh tergite has three rows of bristles in the ♀ and two in the ♂, with an additional bristle on the back. Both rows are more extended laterally than in *S. dasyuri*, at least three bristles of the second row being placed below the stigma on the middle segments of *S. simsoni*. The numbers of short apical spines on the tergites are in the ♂ 5, 6, 4, 2, 2, 2, on the two sides taken together, the ♀ having one or two more on the anterior segments. The seventh segment bears no such apical spines. The bristles on the sternites are also a little more numerous than in *S. dasyuri*.

Legs.—The mid and hind coxæ are broader and more rounded than in *S. dasyuri*. The hind tibia bears more bristles on the outer side, and some of its dorsal bristles are longer, the longest apical bristle reaching beyond the apex of the first tarsal segment. The first mid tarsal segment is about one-third longer than the second, the proportion being 24 : 17. In *S. dasyuri* the proportion is 22 : 20. The longest apical bristle of the first hind tarsal segment reaches to the apex of the second segment, while the longest bristle of the second segment reaches a little beyond the apex of the third.

Modified Segments.—♂. The clasping organs are of the same type as those of *S. dasyuri*. The manubrium, however, is more curved, being pointed at the apex. The elliptical process of the clasper is shorter. The proximal dorsal bristles are accompanied by a single small hair. The finger is rather more slender. The ninth sternite is less curved and differently armed. This sternite bears a long bristle near the base and another half way towards the apical spines, with some hairs in between. The apical spines are decidedly shorter than in *S. dasyuri*, especially the proximal one. The anal tergite (Pl. I, fig. 5) is peculiar, bearing on the upper side near the apex a very dense patch of short bristles.

♀. The seventh sternite is less deeply emarginate than in *S. dasyuri*. The eighth tergite (Pl. I, fig. 2) bears beneath the stigma a vertigial row of five bristles, of which the third is very long, the two lower bristles being more proximal than the others. Ventrally this sternite bears about eleven stout bristles and two small hairs, besides a number of hairs which stand at and near the conically produced apex. Length, 3 mm.

We have one ♂ and ♀ of this species from Launceston, Tasmania, the male from *Mus velutinus* and the female from *Dasyurus maculatus*, collected by Mr. A. Simson.

Tring: December 29th, 1904.

THREE NEW BRITISH SAWFLIES.

BY F. D. MORICE, M.A., F.E.S.

1. PAMPHILIUS GYLLENHALI, Dahib.

A ♀ of this species was sent to me for determination by the Rev. E. N. Bloomfield in the autumn of last year. It is a very handsome insect, and an important addition to our rather meagre list of British *Lydini*. In the tabulation given in my Help-Notes (Ent. Mo. Mag., vol. xv, 2nd ser., p. 243) it should come next to *betulæ*, having like that species *the frons swollen laterally into two strong separated tubercles*, a character which at once separates it from the species most resembling it superficially, viz., *balteatus* and *pallipes*.

In colour it is black, variegated, as follows, with yellow and red. The insertions and scapes of the antennæ, the mouth parts and mandibles, the apex of the clypeus, the frontal tubercles and a patch between each of them and the nearest eye, a patch behind each eye, four streaks on the vertex, the pronotal tubercles, the tegulæ, the middle lobe of the mesonotum (at its base), the scutellum and postscutellum, the trochanters, femora and tibiæ, the overlapping edges of the abdominal dorsal rings, and the extreme apices of the ventral rings, are *creamy-yellow*. The flagellum of the antennæ, the cenchri, and the tarsi, *orange-testaceous*. The third dorsal ring wholly, the fourth in part (obscurely), and the eighth wholly, *sordid red*.

Mr. Bloomfield has most kindly presented me with the specimen. I understand that he received it from Colchester many years ago as *balteatus*. It is, however, certainly *gyllenhali*, and has been recognised as such by Pastor Konow to whom I sent it. (May I be allowed to take this opportunity of mentioning that the unique British specimen of *Sciopteryx costalis* recorded some years ago by Mr. Bloomfield is also, through his generosity, at present in my collection?).

2. AMAURONEMATUS MORICEI, Konow.

This was first described in the Zeitschrift für system. Hymenopterologie u. Dipterologie, November, 1902. The ♀ had occurred in France, Germany, and England; the ♂ only in England, taken by Mr. Chitty at Dodington in Kent. Although it bears my name, I was merely the "middle man" through whom the British specimens (1 ♂ and 1 ♀, both in Mr. Chitty's collection) reached the describer.

The insect is large and conspicuous for a Nematid, and it seems strange that it should not have been detected sooner. Konow's (Latin) diagnosis runs substantially as follows:—

Testaceous, either entirely or with black markings dorsally, often with the extreme base of the clypeus and two lateral vittæ on the mesonotum black, sometimes with the metanotum also marked with black, and the dorsum of the abdomen more or less black fasciated; saw sheath of ♀ black margined: mouth, apex of coxæ,

trochanters, and base of tibiæ whitish ; apex of mandibles brownish ; wings yellow-hyaline ; costa and stigma testaceous ; the other veins, except at the base, fuscous or blackish.

He points out, further, that the species superficially resembles *Pteronux miliaris*, but has a duller surface, the stigma much longer and more pointed, the third cubital cell much longer in proportion to the fourth, the clypeus much broader and less acutely emarginate, &c.

I have seen no other specimens than Mr. Chitty's, but it should certainly be looked for by collectors among their *Pteroni* of the *miliaris* group.

3. *LYGÆONEMATUS PÆDIDUS*, KONOW.

This species was described for the first time so recently as September, 1904 (*Zeitschr. f. Hym. u. Dipt.*), when it was said to be known only from Germany (Erfurt and Ulm). I had, however, already taken it myself in England, during a visit to Mr. Chitty at Huntingfield, Kent, last Easter ; but as I went abroad soon after the specimen was put aside for future examination, and I therefore unfortunately did not send it to Herr Konow till his description was already published.

Unlike the two insects described above, this is but a small and very ordinary-looking saw-fly, and I had no idea at the time of capture that I had lighted on a good thing.

The ♂ is still unknown. I translate here the author's description of the ♀.

♀. Black ; with palpi, labrum, sometimes apex of the clypeus, lateral lobes of pronotum, tegulæ, anus widely and feet, yellow ; venter more or less lurid ; mesopleura sometimes lurid marked ; antennæ and apex of saw sheath black ; hind tarsi and extreme apex of tibiæ dusky ; wings hyaline, veins dusky, costa and stigma luteous.

Ovate ; head and mesonotum pretty densely punctured, almost opaque, shortly white-pubescent ; head narrowed behind eyes ; apex of clypeus widely truncate ; antennæ little longer than abdomen ; fovea above antennæ and frontal area hardly marked ; vertex thrice as broad as long ; third cubital cell in wings dilated towards its apex ; saw sheath more than twice as thick as the cerci ; somewhat narrowed towards the apex, its apex rounded.

Woking: December 9th, 1904.

UROSTYLIS INSTRUCTIVUS, A NEW SPECIES OF THE FAMILY *UROSTYLIDÆ*.

BY PROF. O. M. REUTER.

According to Dallas (*List Hemipt. Ins. Brit. Mus.*, i, 1851, p. 313), the curious family *Urostylidæ* is divided into three genera—*Urostylis* and *Urochela*, both provided with ocelli, and *Urolabida*, having no ocelli. The author finds the distinctive marks of the two former in the structure of the antennæ ; referring to *Urostylis* the species with

these organs "very slender, the basal joint nearly as long as the head and thorax," and to *Urochela* those with the antennæ "stouter, the basal joint not twice the length of the head, much shorter than the head and thorax." In the Fauna of British India, *Rhynchota*, i, 1902, p. 303, Distant maintains the same division. I may observe, by the way, that he adduces as a character for the whole family the short rostrum, although I have as early as in 1881, in the Berl. ent. Zeitschr., described a genus, *Eurhynchiocoris*, whose rostrum reaches as far as the point of the fourth abdominal segment.

Mr. Schouteden has now sent to me for determination a species belonging to this family (with a short rostrum), possessing distinct ocelli, but whose first antennal joint is not twice the length of the head and scarcely as long as the pronotum. It could not, therefore, be referred to the genus *Urostylis*, and the body is more elongate and the antennæ are more slender than in *Urochela*. The whole habitus reminds one of *Urostylis*. The characters given for these genera by Dallas, therefore, require modification, as the new species is undoubtedly, notwithstanding its shorter antennæ, a *Urostylis*.

There is in fact a character, which seems to be of far greater systematic value than the length of the antennæ, the structure of the spinous odoriferous orifices, a character which, indeed, is reproduced in Distant's drawings of these three genera (*l. c.*, figs. 194, 195, 196), although he has not attached any particular weight to it. In *Urochela* the basal portion is somewhat tumid and the sulcated spinous apical piece short, in *Urostylis* and *Urolabida* this, on the other hand, is long. *Urolabida* might almost be regarded as a blind form of *Urostylis*.

The new species, whose diagnosis is given below, I have called

UROSTYLIS INSTRUCTIVUS, *sp. n.*

Viridis, glaber; capite lævi, ocellis distinctis: pronoto remote nigro-punctato, margine apicali reflexo, lateribus tenuiter marginatis, apicem versus leviter rotundatis, pone medium late sinuatis; scutello area basali elevata, triangulari, remote nigro-punctata, parte apicali depressa, parce fortius nigro-punctata; hemelytris lævibus, solum clavo serie scutellari endocorioque serie juxta suturam clavi crebre punctatis, ectocorio remote fortius punctato; membrana fumato-hyalina; antennis gracilibus, virescentibus, articulo primo pronoto longitudine subæquali, secundo primo parum longiore, tertio secundo circiter duplo brevior, nigricanti (reliqui desunt); rostro medium mesosterni attingente; tibiis apice tarsisque superne nigricantibus; corpore inferne lævi; mari segmento genitali utrinque processu horizontali porrecto apicem versus incurvato.

Long., ♂, 9 mm.

Hab.: India, Silhet.

Helsingfors: February, 1905.

MALACHIUS SPINOSUS, ER., AN ADDITION TO THE BRITISH LIST.

BY G. C. CHAMPION, F.Z.S.

The recent discovery of *Malachius barnevillei*, Puton, in Britain has induced me to re-examine all the *Malachii* in my collection, and I find that amongst my *M. viridis* there are three specimens of yet another addition to the British list, viz., *M. spinosus*, Er. These examples (1 ♂ and 2 ♀) were captured by myself at Sheerness on June 6th, 1869, in company with many *M. viridis*. The two species are readily separated by the form of the apex of the elytra of the male, *M. spinosus*, in fact, being nearly related to *M. marginellus*, and belonging to Mulsant's subgenus *Clanoptilus*. The structure of the antennæ and elytral appendages, in both male and female, of all these forms is well shown in Mulsant's "Vésiculifères," Plates 1-3. *M. spinosus* is a common insect in Southern France, Germany, &c., and is found in marshy places.

The Sheerness specimens want the dark elytral setæ, which are sometimes wanting, according to Mulsant.

They may be briefly described as follows :—

Elongate, rather narrow, dull, brassy-green, the front of the head flavous, the apex of the elytra rufous or flavous; clothed with a fine cinereous pubescence, the elytra without setæ. Antennæ very similarly formed in the two sexes, a little longer in the ♂ than in the ♀, the basal joint not dilated. Elytra at the base not wider than the prothorax, subparallel in the ♂, widened towards the apex in the ♀; the apex in the ♂ rufous, very deeply, transversely excavate, the upper and lower lobes horizontal, about equal in length, the upper lobe with a large, tooth-like, emarginate prominence on the inner (sutural) edge beneath, above which is a setiform appendage; the apex in the ♀ broadly fulvous, shining, transversely depressed.

Horsell: February 9th, 1905.

Some Notes on the British form of Hydroporus bilineatus, Sturm.—Dr. Sharp has kindly given me an opportunity of comparing my British examples of *H. bilineatus*, Sturm, with typical specimens taken in the Hautes Pyrénées. At first sight the differences are startling, the typical form has a broad yellow margin running all round the thorax and elytra and a broad bright yellow band on the disc of each elytron about midway between the suture and the margin, starting close to the base and running three quarters of the length where it ends abruptly. In the British insects, on the other hand, the yellow margin is much less bright in coloration and altogether fainter, especially round the elytra, and the bands are less distinct and in some cases almost wanting, besides which they do not start from so near the base of the elytra and they do not end so abruptly.

There is a variety of *H. bilineatus* described by Schilsky (in Deutsche Ent. Zeitschr., 1892, p. 193), named by him *hopffgarteni* to which I have been referred

by Dr. Sharp. The variety is named after Baron Hopffgarten who took it in Thuringia. In these the outer rim is described by Schilsky as being so indistinct that the whole insect appears entirely black, while the absence of the band on the elytra renders the insect scarcely distinguishable from the black varieties of *granularis*, L. In colour the British insects would therefore seem intermediate between the type and the var. *hopffgarteni*. Dr. Sharp informs me that he actually possesses specimens from Thuringia agreeing exactly with those taken by me.

So much for colour: turning to punctuation, in the ♂, the punctuation of the forms is in my opinion indistinct. I have examined them under a 1" objective ($\times 55$) and both are equally alutaceous. In the ♀ this is not the case, the typical form is duller and the punctuation and the alutaceous surface is much finer, and may be termed obsolescent, while in the English form it is hardly distinguishable from that of the ♂, and the pubescence in the typical form seems so fine than it is in the English specimens. In this connection it must be borne in mind that some of the ♀ ♀ of this genus are dimorphic.

The male characters as described by Mr. Newbery (Ent. Mo. Mag., 1903, p. 223) seem to me identical. Under these circumstances the British insects, though widely differing from the type, do not appear to me to be worthy of a new varietal, much less of a new specific name. I think it probable, however, that they ought really to be placed under the variety *hopffgarteni*, Schilsky, inasmuch as if this variety were a distinct species, it is to *hopffgarteni*, Schilsky, rather than to *bilineatus*, Sturm, that I should refer the British insect. It is much to be hoped that the insect will be again turned up at Deal. It should be looked for early in the year about Easter, and if not found near the 2nd Battery, a search in the ditches more in the neighbourhood of Sandwich might be tried.—ARTHUR J. CHITTY, 27, Hereford Square, S.W. : *January 19th, 1905.*

Casual Captures of Coleoptera in 1904.—The following records of species of *Coleoptera* met with by me at various times and places during the past year, may be of interest to readers of this Magazine :—Nothing of any note turned up until April, when a pond at Oxshott produced *Bidessus geminus*, F., *Agabus unguicularis*, Th., and *Philydrus minutus*, F., in numbers, and also a couple of *Ilybius ænescens*, Th. In the same month, at Enfield, a single specimen of *Quedius ventralis*, Ahr., occurred, and from under the bark of a holly *Opilo mollis*, L., was taken, only, however, to be lost a little later whilst bottling something else.

Three visits to Richmond Park during May, in quest of *Anobium denticolle*, Pz., proved successful on each occasion, sixteen specimens in all falling victims to my bottle; the finest example occurred under oak bark, which I removed from a large excrecence upon the trunk. *Xestobium tessellatum* F., was dug out of a decaying beech, and *Megatoma undata*, L., was taken at rest on a portion of the Park fencing, whilst *Aphodius scybalarius*, F., and *Aleochara cuniculorum*, Kr., occurred in the entrances to rabbit burrows.

At Woolwich, in the middle of May, I was surprised to accidentally discover a very strong colony of *Helops cæruleus*, L., under the bark of a portion of an old apple tree which was lying on a piece of garden ground near the middle of the town.

An unsuccessful visit to Suffolk in search of *Anchomenus gracilipes*, Duft., yielded two additions to Mr. Morley's List of the *Coleoptera* of the county, viz.,

Aleochara cuniculorum, Kr., at Lowestoft, from a sand martin's nest in the cliffs, and *Chaetocnema sahlbergi*, Gyll., near Oulton Broad, from Sphagnum in a marsh.

A day spent in ascending Ben Lomond, about the middle of June, produced some welcome insects, although nearly all my collecting was confined to within a few yards of the path from Rowardennan to the summit: *Patrobis septentrionis*, Dj., *P. assimilis*, Chaud., *Carabus glabratus* Pk., *Nebria gyllenhali*, Seh., *Miscodera arctica*, Pk., and *Otiorrhynchus maurus*, Gyll., occurred under stones; *Aphodius lapponum*, Gyll., was common in dung; *Corymbites cupreus*, var. *æruginosus*, F., was taken flying in the sunshine; *Rhagium inquisitor*, F., and *R. bifasciatum*, F., were both captured as they were circling round the extreme top of Ben Lomond, some thousands of feet above the pinewoods which skirt the Loch; *Bembidium atroceruleum*, Steph., was abundant on the shingly shores of Loch Lomond; and *Elm's volkmari*, Pz., was found under stones in the Loch itself.

The last fortnight of June spent in the New Forest did not prove to be all that I had hoped it would. The following species were taken: *Anthaxia nitidula*, L., a nice series; *Conopalpus testaceus*, Ol., in dead boughs broken off old oaks; *Chrysomela varians*, Schall., swept in all its stages from *Hypericum*; *Pterostichus lepidus*, F., in the road; *Anoplodera sexguttata*, F., not uncommon on Umbelliferae; *Strangalia nigra*, L., on various flowers; *Elater elongatulus*, F., swept under pines; *Limnius troglodytes*, Gyll., numerous specimens in a stream; and *Callicerus rigidicornis*, Er., in a pit in the Tile Works.

A few hours at Freshwater Bay resulted in the capture of *Tychius schneideri*, Hbst., by sweeping *Anthyllis vulneraria*, and a single specimen of *Cetonia aurata*, L., which I discovered under a stone at the extreme edge of the cliff.

Lymington Salterns contributed *Sibinia arenaria*, Steph., which was not uncommon at the roots of a species of *Arenaria*, though in rather poor condition, and *Bryaxis waterhousei*, Rye, whilst Chewton Glen yielded *Bembidium saxatile*, Gyll., in some numbers.

Towards the end of July Richmond Park produced a nice series of *Dorcatoma flavicornis*, F., and in the same oak dead specimens of *Anitys rubens*, Hoff., were found; from this tree I have previously taken *Paromalus flavicornis*, Hbst., somewhat commonly.

At St. Margaret's Bay, about the middle of August, *Apion limonii*, Kirby, was found under *Statice limonium*, and *Ceuthorrhynchidius dawsoni*, Bris., and *Otiorrhynchus ligneus*, Ol., on the cliffs, all three in abundance, and *Ocypus pedator*, Gr., and *Bryaxis waterhousei*, Rye, were taken on a narrow ledge just above the point reached by high tides. *Alianta plumbea*, Wat., and *Aleochara algarum*, Fauv., occurred under seaweed, together with swarms of *Cafius xantholoma*, Gr., and *Cercyon depressus*, Steph.

At Lymminster, Sussex, *Megarthrus denticollis*, Beck, was taken from refuse on the banks of a watercress bed, and Arundel Park produced *Cryptophagus ruficornis*, Steph.

A visit to Mr. Pool at Enfield, at the end of August, resulted in the capture of *Hypophæus bicolor*, Ol., in abundance in elm bark, *Megarthrus sinuaticollis*, Lac., and *M. depressus*, Pk., in rotten fungus, and *Leptacinus batyckrus*, Gyll., whilst from swarms of *Litargus bifasciatus*, F., which turned up after dark on the lee side of an old beech, I succeeded, with the aid of a lantern, in picking out a fine specimen of *Lamophæus bimaculatus*, Pk.—E. C. BEDWELL, Elmlea, Clevedon Road, Norbiton: January 16th, 1905.

Strangalia aurlenta, Fab., in *Deronsshire*.—About the middle of August, 1900 I took a specimen of *Strangalia aurlenta*, F., in Harpford Woods, near Sidmouth, South Devon. It is a female, and when found was clinging to the almost perpendicular trunk of an oak about four feet from the ground. I do not know if the species has been recorded from this locality before.—H. G. ATTLEE, 153, Beechcroft Road Upper Tooting, S.W.: December 1904.

Tetropium castaneum, L., at *Esher*.—I observe in the Ent. Mo. Mag. for February last that a specimen of the rare Longicorn, *Tetropium castaneum*, L., was exhibited at the Entomological Society on December 7th, 1904, and it was said that it was probably introduced. I took one specimen on June 22nd, 1902, in the Pine Woods at Esher, sunning itself on a piece of bracken under the pines on the edge of the Wood. I feel convinced it will be found to occur there again if carefully looked for. I shall be pleased to tell any one who may wish to try for it the exact spot where I took my specimen.—G. E. BRYANT, Fir Grove, Esher, Surrey: February 7th, 1905.

Silvanus mercator, Fauv., at *Merton, Surrey*.—Mr. Tomlin's note in the January Ent. Mo. Mag. on the above species has reminded me of a specimen standing with *surinamensis* in my collection which I could never reconcile with any European species. I must have overlooked Mr. Champion's excellent table of the genus (Ent. Mo. Mag., xxxii, 268), or should have referred it long ago to *S. mercator*. It is considerably larger than *surinamensis*, and in addition to the characters given in the above table has the elytra much more deeply and regularly punctured. It was found in a house at Merton, Surrey, in December, 1882, and possibly came from one of the tobacco or other factories in the neighbourhood.—E. A. NEWBERRY, 12, Churchill Road, Dartmouth Park, N.W.: February 15th, 1905.

Ceuthorrhynchus cochleariæ, Gyll., with 6-jointed funiculus.—M. Bedel has been good enough to corroborate a specimen of *C. cochleariæ* with the above abnormal character. He mentions that this aberration is not uncommon in the genus. Except in *distinctus*, Bris., which is regarded as a var. of *punctiger*, Gyll., I have hitherto not met with a similar aberration. This specimen is from Totnes, Devon.—Id.

Notes on Lepidoptera observed at Mortehoe, North Devon, in 1904.—During the three months (July 26th—October 20th) spent at Mortehoe, I did not sugar once, neither did I devote as much time to collecting as in some recent years, nevertheless, several species were added to the list.

Butterflies were very numerous, more especially the following: *Argynnis paphia*, *Vanessa urticae*, in larger numbers than I have seen anywhere; *V. io*, *V. atalanta*, *Pararge megæra*, and the three common whites. Indeed, it was a great butterfly year, yet *Salix semele* was quite scarce, and of *Cænonympha pamphilus* I did not see a single specimen.

In the following list of insects notable for one reason or another, an asterisk indicates that the species is new to the locality:—

Tyria jacobææ. This species seems to be establishing itself, as the larvæ were noted in two widely separated localities.

Polia socia (petrificata). One at ivy.

Leucania conigera. Seen feeding on the flowers of *Centaurea nigra* in full afternoon sun. *Agrotis xanthographa* (1), and *Hydræcia nictitans* (2), on ragwort bloom in full sunshine. It seems curious that one out of the many hundreds of *A. xanthographa* that must have been close by should go to the ragwort all alone. It is only slightly less strange that *L. conigera* and *M. literosa* should in like manner only rarely frequent flowers by day.

Macroglossa stellatarum. Several.

**Deilephila elpenor*. Several larvæ in the garden on *Epilobium montanum* mostly found by Mr. A. L. Onslow.

Sphinx convolvuli. One seen September 18th.

**Acherontia atropos*. One taken close to the shore by Master H. Wimbush in 1903 was reported to me by Mr. T. Young.

**Vanessa polychloros*. Previously "reputed." A worn specimen in the drawing-room October 2nd. This makes 35 species of butterflies that have certainly been taken in the parish. *V. cardui*. Fine specimens seen early in August, but not so common as the season advanced.

Satyrus semele. One at flowers in the garden, quite unusual with this species.

Epinephele janira. One hour before sundown, July 31st; a single tap of my beating stick dislodged seven specimens from a thorn bush.

Lycæna argiolus. A female netted July 29th, making the third specimen in the locality.

Colias edusa. One seen.

Pieris napi. At 3.30 p.m., on August 1st, a very hot day. Mr. A. L. Onslow and I saw 14 or 15 white butterflies sitting close together with wings closed on mud by the road-side. A circle a foot in diameter would have enclosed them all; within a couple of feet were eight more. They were all *napi* and all males. We noticed that when another flew over them several of those drinking would open and shut their wings rapidly. When disturbed they mostly flew but a short distance and settled on the lower leaves of a hedge close by with wings expanded, an attitude that seems to be habitual with the species in the late afternoon. On apparently suitable days I twice revisited the spot with my camera, but there were but one or two whites on the mud. The butterfly habit of drinking at mud, or wet sand, in companies is well known to collectors in hot countries, and I have seen it in Germany, but never previously in England.

Pyrausta cespitalis. I saw my first Mortehoe specimen, previously recorded by Dr. Ridg. **Scoparia angustea (coarctata)*. One at ivy. *Epiblema cana* confirmed; previously with a query. **Acalla ferrugana*. Two beaten out of hedges. *Tortrix forskaleana*. A second specimen, in the garden. **Gelechia mulinella*. Two. *Depressaria costosa*. Abundant among furze; only odd specimens previously. *Hypnometra cognatella (evonymella)*. A second specimen at some distance from the spot where Mr. Image took the first. *Plutella annulatella*. One at light.—G. B. LONGSTAFF, Highlands, Putney Heath, S.W.: January 11th, 1905.

Remarkable larval case of Coleophora lixella, Z.—In Ent. Mo. Mag., xx, 18 (1883), attention was called to the peculiar habits of the larva of *Coleophora lixella*, which, during the autumn, when quite young, feeds upon wild thyme, using for its

case a dry calyx of thyme, and after hibernation begins to feed upon grass while still ensconced in the calyx, which, however, is altogether abandoned before long in favour of a case manufactured from a piece of a grass blade. On April 24th last, in the course of a close and successful search for young larvæ of *Pterophorus tetradactylus* in the Isle of Purbeck, I came across some larvæ of *C. lixella* in their grass cases, feeding on various grasses growing on the chalk. One of these had a large case, measuring exactly 10 mm. in length, of very exceptional interest, for instead of the thyme calyx case having been discarded, according to the usual habit, when the grass case was made, the former had been retained, and evidently used as the foundation stone of the latter, of which it now formed an integral part of the anterior half of the dorsal surface. Another grass case of smaller size had an old thyme calyx case attached rather loosely by the mouth to it, but in this instance the thyme case did *not* form any part of the grass case, and I suppose the larva had accidentally made its case of the piece of grass to which it had left the thyme case affixed. Four days previously I had the good fortune to find, in the same spot, three of the thyme calyx cases of this species, which seem to be rarely met with; they were untenanted, and were attached to blades of grass upon which the larvæ had obviously fed *before* they had vacated them.—EUSTACE R. BANKES, Norden, Corfe Castle: *January 28th, 1905.*

Two pupæ of Aplecta nebulosa, Hfn., in the same cocoon.—Of some larvæ of *Aplecta nebulosa* that I was rearing last season, two, to my surprise, saw fit to pupate in the same cocoon, which measured 32 mm. in length by 23 mm. in breadth, and was made of thin, nearly transparent, white silk, being spun against the white blotting paper which lay on the floor of the cage. The two pupæ, which were quite healthy, and normal in size and shape, lay side by side, touching one another, along the middle of the cocoon, no attempt having been made by the larvæ to construct any partition between the respective sides of it which they occupied.—ID.

Notes on some Diptera from the New Forest, 1904.—I spent some three weeks in July last year at Brockenhurst, and gave most of my attention to *Diptera*. Speaking generally, there seemed to me to be a scarcity of many of the usually common species of *Syrphidæ* (*sensu lato*) and a corresponding increase in certain species of *Tabanidæ* and *Leptidæ*. The following notes on certain captures may perhaps be considered worthy of record:—

Theriopectes solstitialis, Mg., and *Atylotus fulvus*, Mg.—Odd specimens of these two species were to be met with as usual in several places, but on one occasion in a swampy piece of ground near Rhinefields they both occurred in considerable numbers, together with other species of *Tabanidæ*. Going to the same locality a day or two afterwards I could not find either of them. I saw no males.

Tabanus cordiger, W.—When putting away my captures in the autumn I found that I had taken five females of *T. cordiger*. I probably overlooked others through their superficial resemblance to *T. bromius*, L.

T. bromius, L., ♂, and *T. maculicornis*, Ztt., ♂.—I came across the males of both the above settling on palings; they were by no means easy to net, being shy, and very quick on the wing.

Atherix marginata, F.—I owe the capture of this species to Mr. F. C. Adams, who wrote me on July 14th that he had taken it at Brockenhurst Bridge. I subsequently found both sexes abundantly in a number of localities.

A. crassipes, Mg.—While looking on the alders and sallows for *A. marginata* I kept a sharp look out for this rare insect, and in the last few days of my stay had the pleasure of taking it sparingly.

Eristalis cryptarum, F.—This handsome little Dipteron occurred at Matley Bog. My specimens were taken while working for *Anthrax fenestratus*, Fln., and they seemed specially attracted by the flowers of the *Potentilla*.

Syrphus nitens, Ztt.—I took a single male of this species at Rhinefields.—H. W. ANDREWS, Shirley, Welling: *February 8th*, 1905.

Rare Diptera in 1903.—I take this opportunity of recording the following three species taken in 1903. *Machimus rusticus*, Mg.: I had the good fortune to take a pair of this scarce Asilid *in coitu* in a sheltered part of the cliffs near Freshwater, Isle of Wight, on August 13th, 1903; I am indebted to Mr. Verrall for kindly identifying this species. *Anthrax circumdatus*, Mg., and *Didea alneti*, Fln.: single specimens of each taken at Matley Bog on the same day (August 21st, 1903).—ID.

Note on a Tachinid.—Dr. Chapman very kindly gave me a Tachinid, together with the appended note upon the same, and suggested that if I thought it worth while I should send the note on for publication. The interesting facts concerning the long period of quiescence on the part of the Tachinid larva seems worth placing on record, although I unfortunately cannot supply its name. It is apparently a *Protopæa*, Rdi., but is most probably an undescribed species. Its most important characters are the great length of the third antennal joint, which is eight times the length of the second, the arista with second joint but little longer than broad, and the 3rd joint thickened nearly to the point. The facial cilia short, not numerous (about 14), and not exceeding three-fifths of the distance from the vibrissæ to the base of the antennæ; the chin about one-fourth as wide as the height of the eye. There is a slight eubital appendage to the fourth longitudinal vein of the wing, the angle of which is distinctly obtuse. In other respects it is a normal *Protopæa* according to Brauer and von Berganstamm. It is a female, and is labelled, "bred January 15th, 1905, from *Ocnogyna betica*, Madrid, 1904.—T. A. C."—COLBRAN J. WAINWRIGHT, Birmingham: *January*, 1905.

Dr. Chapman's note is—The history of most Tachinid parasites of *Lepidoptera* I have met with gives the Dipterous larva emerging from its host whilst the latter is still a larva, or very shortly after its change to pupa. The larva then hardens into the so-called pupa, and in this state it passes most of the time it has to be quiescent with us through winter. This specimen of *Protopæa* sp., however, emerged from a pupa of *Ocnogyna betica* shortly after the emergence of the moths from the healthy pupæ, viz., late in November, having been as a larva within the pupa during its whole æstivation (from April to October). Resisting all tendency of the summer heat to hurry it forward as a larva, the pupa responded to the warmth of my mantelshelf, and the fly appeared January 15th. Naturally I suppose it would have emerged in March or April ready to sting the then feeding larvæ of the *Ocnogyna*. It is very possible that I hurried it out of the pupa of its host, and that naturally it does not leave it till early spring. A curious circumstance is that the pupa case of the moth broke up for the emergence of the larva of the parasite in a manner very similar to that for the emergence of the moth.—T. A. CHAPMAN, Betula, Reigate: *January 16th*, 1905.

Review.

PRACTICAL HINTS FOR THE FIELD LEPIDOPTERIST. Part III. By J. W. TUTT, F.E.S. London: Elliott Stock, 62, Paternoster Row, E.C. (January, 1905).

The third part of this excellent series of "Practical Hints" fully sustains the reputation of the two that have preceded it, and is another testimony, if one were needed, to the industry and acumen of its indefatigable compiler. Like the former parts it mainly consists of a series of suggestions and instructions for the outdoor collecting of our British *Lepidoptera* during each month in the year, the superfamilies of the Order being treated under separate headings. These hints are drawn from the experience, not only of the author himself, but from that of nearly all our best field workers, the older collectors not being forgotten. A glance at the copious and well-arranged Index to the complete work shows that hardly a species not of universally common occurrence, or so rare as only to be met with by mere chance, has not been referred to; indeed, we estimate that the "Hints," upwards of 4000 in number, deal with at least two-thirds of our native species of *Lepidoptera*. To the beginner in the practical study of the Order in the field, the work is thus a veritable encyclopædia of reliable information; and while the "old hand" will be already familiar with much of its contents, he will not fail to find abundance of new material presented in a very readable and attractive form. The introductory chapters to the part, especially those on "Collectors, Collecting, and Collections," and the "Eggs and Egg-stage of *Lepidoptera*" (the latter illustrated by three very good plates), are exceedingly interesting and suggestive, and the "Hints for describing Larvæ" will be found very useful. As we understand that the first part of this work is practically out of print, and the second nearly so, we venture to hope that a re-issue of the complete series—which should be in the hands of every Lepidopterist—may ere long appear in one volume, and, if possible, at a reduced price.

Obituary.

Professor Friedrich Moritz Brauer.—It is with sincere regret that we announce the death, on December 29th last, in his 73rd year, of this distinguished Viennese Entomologist.

Previous to applying himself fully to the study of the Order that he made his own, the *Diptera*, Brauer's attention was chiefly occupied by the *Neuroptera*, and his first entomological publication, in 1850, was a revision of the genus *Chrysopa*. This was followed during the next few years by numerous papers on the biology of the Order, which established his reputation as one of the foremost European authorities on the *Neuroptera*.

In 1858 his attention was directed to the remarkable life-history of the Dipterous family, *Æstridæ*, and the result of his researches in this field was the publication, in 1863, of the most valuable "Monographie der Oestriden." As an outcome of these researches, he instituted the now generally accepted division of the *Diptera* into the two great sections—mainly based on the form of the pupa—of the *Orthorrhapha* and the *Cyclorrhapha*. Subsequent investigations into the metamorphoses of the entire Order resulted in the publication of his new "System of *Diptera*," which appeared in 1883, and it is generally regarded as the best arrangement of the *Diptera* as yet proposed. Latterly his attention was directed to the *Tachinidæ*, and other parasitic *Diptera*, on which he published a valuable treatise, in collaboration with Herr Julius von Bergenstamm.

To British Entomologists, other than Dipterists, Brauer is perhaps best known by his system of Classification of the Insecta, "based upon recent advances in anatomy and embryology."* This system, which, with a very interesting review by Dr. Sharp, appears in the "Cambridge Natural History," Insects, part I, p. 175, divides the Class into no fewer than 17 Orders, the old Linnean "*Neuroptera*" furnishing seven of these.

From an assistant in the Entomological Museum of the University of Vienna, Brauer became Custodian of the Collections in 1873, and in the following year was appointed Professor of Zoology in the University. His great services to our science were fittingly acknowledged by his election, in 1900, as an Honorary Fellow of the Entomological Society of London.

We are greatly indebted to Mr. J. E. Collin, F.E.S., for kindly supplying the information which has enabled us to draw up this notice.

Societies.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY :
November 24th, 1904.—Mr. E. STEP, F.E.S., Vice-President, in the Chair.

SPECIAL EXHIBITION OF VARIETIES.

Mr. H. W. Moore, of Shortlands, Kent, was elected a member.

Mr. Cannon exhibited, on behalf of Mr. Frohawk (1), a long series of *Colias edusa* v. *helice* bred from var. *helice* ova in 1900 (autumn), showing every gradation from typical white v. *helice* to typical *C. edusa*; (2), a series of *C. hyale* showing gradation in extent of markings; (3) a fine pale variety of the last, with all the usual black markings replaced by pale opalescent colouring. Mr. Colthrup (1), a very pale form of *Smerinthus ocellatus*; (2), a partially xanthic form of *Anthrocera filipendulae*, and (3), a *Dianthæcia capsicola* of unusual shade. Mr. Harrison and Mr. Main (1), *Argynnis aglaia* from North Cornwall, with xanthic markings; (2), a bleached specimen of *Epinephele jurtina* (*janira*) from North Cornwall; (3), *Zonosoma pendularia*, var. *subroseata* from Staffordshire; (4), a series of *Boarmia repandata* and v. *conversaria* from North Cornwall, with series from Wiltshire and Isle of Lewis for comparison; (5), a series of *Aplecta nebulosa* from North Cornwall, with series for comparison from Delamere Forest, including var. *robsoni*, and from Epping Forest; (6), *Miana strigilis* from North Cornwall and Delamere Forest; (7), *Hybernia marginaria*, melanic specimens from near Liverpool; (8), long series of *Pieris napi*, spring brood from North Cornwall, with spring bred Enniskillen series for comparison; (9), summer broods of the same species from Enniskillen and Delamere Forest; (10), series of spring brood of the same species from Kilkenny, with particularly dark females, bred by Mr. Montgomery. Mr. Montgomery, series of bred and captured *Leucophasia sinapis* of both broods from Berkshire, Cornwall, Devonshire, Worcestershire, and the New Forest. Mr. Hickman, an extremely dark var. of *Arctia caja* bred from a larva taken at Wye in August, 1903. Mr. Crow, a remarkable rosy form of *Calymnia trapezina* from Hayes, and a specimen of *Pyrameis atalanta*, showing xanthic spots, bred from a larva taken at Elmer's End. Mr. Stonell, a gymandrous example of *Lachneis lanestrus*. Mr. Joy (1), a bred series of *Pararge egeria*, from

* Syst. Zool. Studien S. B. Akad. Wien, xci, 1885. Abth., I, p. 374.

ova laid by a female taken in June, 1903; (2), two series of the same species, bred from a pairing induced in captivity, of which (a) hibernated as pupæ, (b) hibernated as half-fed larvæ. Mr. Chittenden, a large number of varieties and aberrations of *Lepidoptera*, including *Spilosoma lubricipeda* var. *radiata*, with black fringes, *Boarmia repandata* dark, *Acidalia inornata*, very dark, from Kent, very dark *Cymatophora duplaris* from Market Drayton, *Curadrina morpheus*, *Agrotis segetum*, *A. exclamationis*, *A. corticea* all very dark from Kent. Mr. R. Adkin (1), a specimen of *Saturnia pavonia* having the body and wings undoubtedly ♀, while the antennæ were distinctly ♂. It was bred in 1904 from an Isle of Lewis larva of 1901; (2), a very dark specimen of *Syrichthus malvæ* from Brighton; and (3), a fine specimen of *Agrius convolvuli* taken at Eastbourne, September 18th, 1904. Mr. Harris, a bred series of *Hemerophila abruptaria*, including a number of the more or less extreme melanic form. Mr. Goulton, examples of *Hypsipetes sordidata* (*elutata*) with dark forms, *Pseudoterpna pruinata* with brown forms (bred), and light forms of *Boarmia repandata* from Rammore. Mr. Brown, *Hydræcia nictitans* var. *paludis*, very dark *Xylophasia polyodon*, dark *Leucania conigera*, all from Deal; varied forms of *Polyommatus corydon* from Reigate, bred and very varied series of *Cidaria russata* and *C. immanata* from Horsley, and light and dark forms of *Amphydasis betularia* bred. Mr. Dobson, twenty-seven species of dragon-flies taken by him in Surrey and Hampshire during the last two years, including *Gomphus vulgatissimus*, *Anax imperator*, *Æschna mixta*, *Platycnemis pennipes*, *Ischnura pumilio* and *Agrion mercuriale*. Mr. H. Moore, an example of *Heliconius sicalata* from Trinidad, somewhat different from the type, and a series of *H. cydno*, showing the range of variation of the snow-white markings. Mr. Garrett, a specimen of *Pyrameis atalanta* taken in Northamptonshire, having xanthic markings in the red band of the hind-wings. Mr. South (1), *Aplecta nebulosa* with var. *robsoni* and the so-called var. *thomsoni*, and examples from many localities to show the range of variation in the species; (2), *Polia chi*, a ♀ var. *olivacea*, and a bred series from ova laid by it, all of which were dark; (3), an *Abraxas grossulariata* with buff ground colour; (4), *Eurrhypara urticata* with confluent spots; (5), *Peronea hastiana*, series from Wisley and Lancashire, the latter including several named forms; and (6), *Pædisca solandriana*, a long series collected in two afternoons at Oxshott, including at least seven named forms. Mr. G. T. Porritt, a fine bred series of *Agrotis ashworthii* from North Wales. Mr. H. J. Turner, a copy of the original edition of Moses Harris' "Aurelian," slightly defective, picked up for a few shillings on a bookstall. Mr. W. J. Kaye (1) a series of *Pseudoterpna pruinata* showing considerable variation in the banding, several bred specimens from Bude had all the usual markings suppressed; and (2) a specimen of *Titanus giganteus*, the largest known Longicorn beetle from British Guiana. Mr. Barraud (1) *Epinephele jurtina* var. with the usual white pupilled spot on the fore-wing absent, and on the under-side of the hind-wings, specks instead of spots; and (2), a brown suffused *Spilosoma menthastri* from Bushey. Rev. J. E. Tarbat (1) *Euthe-monía russula* with smoky hind-wings; (2) a ♀ *Pœcilocampa populi* having a rudimentary fifth wing anterior to the right fore-wing; and (3) a ♂ *Erebia æthiops* with shaded marks on the left-hand wings. Mr. Bacot, a long series of *Spilosoma urticæ*, consisting of eight broods belonging to three generations, all originating from a single female captured in Norfolk. They showed a large extent of variation

as regards the spotting. Mr. Prout for Mr. Match, pale aberrations of *Agrotis ypsilon* and *Phlogophora meticulosa*, much darkened specimens of *Cleora glabraria*. Mr. Prout, some extremely fine varieties of (1) *Melitaea cinxia*, mostly of one aberrant brood in 1901; (2) blackish ab. *ingenua* of *Aporophylla australis*; and (3) very dark *Eubolia bipunctaria* from North Devon, and *Luperina testacea* from Sandown. Mr. Edwards, representatives of all the genera closely allied to *Papilio*, including the rare *Armandia thaidina* and *Bhutanitis lidderdalii*, and contributed notes on each. Dr. Chapman (1) a very large number of the genus *Chrysophanus* taken this year in Spain, including the var. *miegii* of *C. virgureæ*, various forms of *C. phlaeas* from light forms to the extreme dark var. *eleus*; (2) a drawer of *Erebias* also from Spain, including various races of *E. evias* and *E. stygne*, and a long series of a new species, which he had named *E. palareica*, closely allied to *E. stygne* but larger than any *Erebia* hitherto known. Dr. Chapman, on behalf of Mr. Tutt, for comparison with his own, a large number of Chrysophanids from many mid-European sources. Mr. Tonge, three albums of photographs of the ova of *Lepidoptera*. Mr. Carr, on behalf of Mr. F. M. B. Carr, a specimen of *Vanessa io*, having the usual eye-like spots on the hind-wings very obscure.—H. J. TURNER, *Hon. Secretary*.

ENTOMOLOGICAL SOCIETY OF LONDON: *February 1st*, 1905.—Mr. F. MERRIFIELD, President, in the Chair.

The President announced that he had appointed Dr. Thomas Algernon Chapman, M.D., F.Z.S., Dr. Frederick Augustus Dixey, M.A., M.D., and Professor Edward B. Poulton, D.Sc., F.R.S., as Vice-Presidents for the Session 1905-6.

Mr. H. St. J. Donisthorpe exhibited specimens of *Oligota granaria* found in a granary at Holborn, the only other localities reported hitherto being Scarborough and Shoe Lane, London. Mr. W. J. Kaye, a specimen of the Eryeinid butterfly *Mesosemia eumene* pinned in its natural position of rest, to show its resemblance to the head of a small mammal, such as a mouse. Dr. T. A. Chapman, a variety of the female of *Lycaena melanops*. As a mere aberration it was interesting, but it was of value as showing that the position in the genus for long accorded to the species, whether by accident or design, close to the *Arion* = *Euphenus* group, was correct. He had named the variety, which seemed to be undescribed, var. *wheeleri*. Mr. F. Enock, a living ♀ *Hybernia defoliaria*, taken as late as February 1st, at rest on the north side of an oak tree, and another ♀, taken January 28th, in the same wood at Bexley. He also exhibited, on behalf of Mr. Leonard Newman, of Bexley, a ♂ *Notodonta ziczac*, ♀ *N. dromedarius*, with two hybrids bred, together with typical larva of *N. dromedarius* and hybrid ditto; the colour of the hybrids being that of *dromedarius*, while the markings were those of *ziczac*. Mr. O. E. Janson, a living specimen of *Acridium egypticum*, L., found in a cauliflower in Bloomsbury, and probably imported from Italy. Mr. G. C. Champion, two specimens of *Malachius barnevillei*, Puton, captured by Mr. Thouless at Hunstanton, Norfolk, in June, 1899, a recent addition to the British list. Mr. H. W. Andrews, ♂ and ♀ specimens of *Machimus rusticus*, Mg., a rare Asilid, taken *in cop.* at Freshwater, Isle of Wight, on August 13th, 1903. Mr. W. J. Lucas, a ♀ specimen of *Panorpa cognata* taken at Byfleet Canal on August 23rd, 1904. The species occurs at Folkestone, and is said to be found in the New Forest. For comparison he also exhibited ♀ specimens of *P. communis* and *P. germanica*.

Mr. Gilbert Smith read a paper, entitled, "A revision of the genus *Criocephalus*, with notes on the habits of *Asemum striatum* and *Criocephalus fesus*," written by himself and Dr. D. Sharp, F.R.S. Dr. T. A. Chapman, papers on "The matriforous habit of *Heterogynis*," and "The pupal suspension of *Thais*." Mr. E. Meyrick, B.A., communicated a paper on "*Lepidoptera* from New Zealand." Mr. G. C. Champion contributed a paper on "Another Entomological Excursion in Spain," by himself and Dr. T. A. Chapman.—H. ROWLAND-BROWN, *Hon. Sec.*



TORTRIX UNICOLORANA, DCP.

LIFE-HISTORY OF, AND NOTES ON, *LEUCANIA FAVICOLOR*,
BARRETT.

BY PAYMASTER-IN-CHIEF GERVASE F. MATHEW, R.N., F.L.S., F.E.S.

In the Entomologist's Monthly Magazine for 1896, vol. vii of second series (vol. xxxii), pp. 99-100, the late Mr. C. G. Barrett described the above species from three examples I sent to him, and which I captured on the coast in this neighbourhood, and at the same time he described a red variety of what he then referred to as *L. pallens*, from specimens I forwarded to him for examination.

In his excellent work on the British *Lepidoptera*, vol. v, pp. 141-2, he again describes the species, and gives three figures of it on plate 201; and in his description of *L. pallens*, vol. v, p. 140, he likewise refers to the red varieties taken here, which he still considered to be extraordinary aberrations of *L. pallens*, and mentioned that similar examples had been found near the mouth of the Thames. (I may here note that I first took specimens of this red variety as long ago as 1886.)

From August, 1896, until October, 1898, I was away from England in H.M.S. "Hawke," on the Mediterranean Station, and was not able to pay any attention to this species again until 1899, in which year only two were noticed. None were seen in 1900, or 1901, and only five in 1902, although they were carefully looked for, but in 1903 they occurred in small numbers, and also in 1904. Among the series taken in 1903 there were some very extraordinary and beautiful varieties, comprising various shades of grey, deep red, and even yellow, and I now came to the conclusion that the so-called red variety of *pallens* was really only a variety of *favicolor*; an opinion I had previously entertained. The red variety of *pallens* is quite a different looking insect, for, in addition to its general shape and appearance, and its usually smaller size, the red is very much less pronounced, being more or less tinged with ochreous, and the white, or pale straw coloured nervures are always conspicuously raised, while in *favicolor* the wings are quite smooth, and the veins are almost imperceptible.

From the above series I selected some of the finest examples, and forwarded them to Mr. Barrett, who was very pleased to see them, and he now concurred with me in considering the red aberrations to be varieties of *L. favicolor*, and not of *L. pallens*, and he contributed a short account of them to this Magazine, vol. xl, p. 61.

I obtained ova from three different varieties (one typical, one red, and one yellow), and from these I last year succeeded in breeding

twenty-seven moths in all. The typical parent produced typical and red offspring, the red parent typical and red offspring, and the yellow parent typical and red offspring, but no yellow ones. The yellow variety seems to be very rare.

In the Entomologist's Monthly Magazine for 1896, vol. xxxii, p. 162, and the Entomologist's Record for the same year, vol. viii, pp. 133-135, Mr. J. W. Tutt having expressed some doubts as to the claim of *L. favicolor* to rank as a good species, I wrote and asked him if he would care to examine the series I had sent to Mr. Barrett, together with others bred and captured since, and he replied that he would like to do so, and so they were forwarded with the result announced in the Entomologist's Record for 1904, vol. xvi, pp. 252-254, where, after saying that he was now quite convinced as to its right to be considered a distinct species, he proceeded to describe and name eight of the aberrations. A short time after I sent these examples to Mr. Tutt I took other varieties of a second brood, which I likewise sent to him as soon as they were fit to be removed from the setting boards, but they were not received in time to be embodied in the above paper, so I subsequently described them myself in the Entomologist's Record for the current year, vol. xvii, p. 14. All the examples above referred to were exhibited at a meeting of the Entomological Society of London on November 2nd, 1904, and a description of them is given in the Proceedings of the Society for that year, p. lxxiii.

L. favicolor appears to be a very local species, and as far as my experience goes seems to be restricted to the fringes of the salt marshes that impinge on the coast. In this district the marshes are rapidly disappearing, owing to the encroachment of the sea and destruction of the sea banks, and those where I first obtained it a few years ago, which were such good collecting grounds for other coast species, have since been converted into mud flats which are covered by every tide, so I am afraid that this interesting species will soon cease to exist in this neighbourhood.

Mr. Tutt, in the paper above quoted, has given some account of its habits from my notes, so I have not much further to add, except that it is pretty early on the wing, and flies soon after dusk, and that it is particularly partial to the flowers of various kinds of grasses. It is to be found from the middle of June until the end of July, and last year, for the first time, I took several of a second brood in August and September. It probably occurs all along the east coast in suitable

localities. Single examples have already been recorded from near Southend and Rochester, and I hear that it has also been taken in Suffolk.

The eggs of this species, in a state of nature, are probably deposited at the axils of the sheaths round the stems of various marine grasses, but which I cannot say, for, up to the present time, I have not been able to discover the larva in its wild state. In confinement in chip boxes, where flakes of the chip have been raised with the point of a penknife, the eggs are thrust well beneath the pieces so raised, and generally in groups close together, and, sometimes, when there is sufficient room, they are piled one on top of each other. In a very few instances one or two eggs have been laid between the top edge of the box and the lid. The principal object of the parent moth appears to be to lay them where they will be well out of sight and hidden from the light. But they were very shy of laying in confinement, the batches were not numerically large, and several females died without laying at all.

When first laid the eggs are round and smooth, of a pale straw colour, and covered with a glistening glutinous substance, but in the course of a few days many of them assumed a shrivelled up appearance, and when this occurred to the first batch I had I thought they were infertile, though they afterwards changed colour and produced larvæ. About the third day after the eggs were deposited they changed to a deeper straw colour, and a day or two before they hatched became of a pale leaden hue, which gradually darkened as the time for emergence arrived.

The period passed in the egg state appears to be nine or ten days. I did not note the date of emergence of each batch of ova. My observations and descriptions of the larvæ in their earliest stages were principally taken from one lot of eggs that were deposited by a typical female on July 2nd, and which hatched on July 11th. (Other lots hatched July 15th, 18th, and 24th, and of the second brood on September 15th, 16th, 23rd, 24th, and 27th.)

When first hatched the little larvæ were of a dull smoke colour, with shining dark brown heads, but in about twenty-four hours, after they had eaten a little, they became paler, their anterior segments were tinged with olive-green, and their heads were of a reddish-brown colour. The dorsal plate on the second segment was well defined. At this stage their anterior segments were somewhat swollen, and the posterior attenuated. When disturbed they fell suspended by a silken thread. For the first three or four days of their existence

many of them, after feeding, retired to the shelter of the crevices in the lid of the chip box, others hid in the crinkled paper provided for them, and only a small number sought protection among the stems of their food-plant.

The young larvæ as soon as they were hatched were supplied with various kinds of grasses, and I was pleased to see that they selected *Poa annua* for their food, a plant which is so common and so much more easy to procure and keep fresh than any of the marine grasses, one of which I was afraid they might have selected. This continued to be their food until some of them began to die off at the end of the year, when *Dactylis glomerata* was added, and this they eat sparingly, but always showed a preference for *P. annua*, being particularly partial to the flower buds, flowers, and unripe seeds.

For the first three months the young larvæ were kept in glazed jam pots, and a piece of the grass pulled up by the roots, placed in a wide-mouthed bottle full of water, and carefully plugged with cotton wool, stood on the bottom, and so the food kept fresh and sweet for at least a fortnight. Round the bottle stood pieces of paper folded in accordion pleats, and high enough to touch the lower part of the food, so as to enable any larva that might fall to the bottom of the jar to crawl up again, and also to afford a hiding place during the day. Later on, when the larvæ became larger, I found pieces of corrugated paper formed capital hiding places, and now I use this for all kinds of larvæ up to within a few days of their becoming full grown, when it must be removed, as the larvæ are apt to spin up one over the other in the paper tubes, when of course the lower ones would be unable to emerge. To convert the jar completely into a breeding cage two pieces of bent wire to form a frame for the muslin hood were placed in it, and the hood then drawn over and tied with tape round the top of the jar in the groove for that purpose. These jars make excellent little breeding cages, but tape should always be used for tying down the muslin hood, as it does not slip like string. I usually twist it twice round the jar and tie as tight as possible.

(To be continued).

Quedius xanthopus, Er., at Sherwood.—On October 15th, 1904, I met with a few specimens of this uncommon species. One specimen only was taken under bark of a decayed oak, the remainder occurred in a mass of very rotten, fœtid black fungus, on the stump of a cut-down birch. It was quite impossible to identify the species of fungus owing to its extremely decayed condition. I am indebted to Mr. E. A. Newbery for very kindly identifying the insect.—J. KIDSON TAYLOR, 35, South Avenue, Buxton: March 8th, 1905.

LIST OF BRITISH *DOLICHOPODIDÆ*, WITH TABLES AND NOTES

BY G. H. VERRALL, F.E.S.

(Continued from page 57).

14. *MELANOSTOLUS* Kow.

M. melancholicus Lw.: I caught one male and two females at Woking on August 1st, 1875, which I described in this Magazine in 1876 as *Diaphorus dorsalis* n. sp.; I had not overlooked Loew's description of 1869, but I had failed to identify it. It was not until 1884 that Kowarz founded the genus *Melanostolus* for it.

15. *DIAPHORUS* Meig.

- 1 (4) Base of abdomen translucent yellow.
- 2 (3) Hind femora mainly brownish-black; the yellow on the abdomen occupying at least all second segment1. *oculatus* Fall.
- 3 (2) Hind femora black on only about apical half2. *Hoffmanseggii* Meig.
- 4 (1) Base of abdomen concolorous with the rest.
- 5 (6) Blackish; halteres black3. *nigricans* Meig.
- 6 (5) Metallic-green; halteres yellow4. *Winthemi* Meig.

Several more species allied to *D. Winthemi* may occur in Britain.

1. *D. oculatus* Fall.: not very uncommon in Hampshire, Sussex (several localities), Kent, Suffolk, Pembroke, and Cumberland (Coniston).
2. *D. Hoffmanseggii* Meig.: I leave this name in our list for a specimen taken by me at Lyndhurst, and one taken in the New Forest by Dr. Sharp, though they would answer more correctly to *D. tripilus* Lw. I am, however, impressed by some specimens in Kowarz's collection which are labelled *D. eyanocephalus* Mg. = *Hoffmanseggii* Mg. = *tripilus* Lw. Kowarz had a good collection of the European species of *Diaphorus*, and undoubtedly he had arrived at this synonymy, and to confirm part of it I must say that every male I have seen called *D. Hoffmanseggii* would answer to the description of *D. tripilus*; *D. eyanocephalus* has remained an unrecognised species since its first description in 1824, but would well answer to this species, except that Meigen must have overlooked the pale base of the abdomen if his specimen was a male.
3. *D. nigricans* Meig.: I have taken a few specimens of this species in the New Forest, and I have seen two in the late Dr. P. B. Mason's collection. I have several females from Three

2. *A. leucocephala* Meig.: the commonest British species from Penzance to Aberdeen. Is it called *leucocephala* because it is the only common species with a black face?!
3. *A. argyria* Meig.: this and the next are two rather small species which are not easily distinguished. *A. argyria* is the less common of the two, but I have seen it from Sussex to Sutherland.
4. *A. argentina* Meig.: common over all Britain.
5. *A. confinis* Zett.: a rare species, but I have taken odd specimens in at least Hampshire, Surrey, and Cambridgeshire.
6. *A. atriceps* Lw.: an unmistakable *Argyra*, though it has but little silvery gloss. I first caught it in Millersdale on June 18th, 1888, and I took two more at or near Three Bridges (one in Sussex and one in Surrey) in June, 1892.
7. *A. elongata* Zett.: only known as British, or rather Irish, from Haliday's record in Walker's Ins. Brit. Dipt., i, p. 209. I see no reason to doubt its correct identification. Since I wrote the above Col. Yerbury took one male at Nairn on July 11th, 1904.

Three or four more species ought to occur in Britain.

17. *LEUCOSTOLA* Lw.

This genus is separated from *Argyra* only by the glabrous basal joint of the antennæ. It may be an unnecessary genus, but its retention is convenient.

L. vestita Wied. is like a small *Argyra*. Not uncommon in Hampshire, Sussex, Essex, Cambridgeshire and Suffolk; also taken by Mr. F. Jenkinson at The Aird in Ross.

18. *THRYPTICUS* Gerst.

T. bellus Lw.: this species was described by Loew from a specimen taken by me near Kew on August 4th, 1868 (and not as Loew stated on July 14th), and I have since taken it in Hampshire, Sussex, Suffolk and Norfolk, while on the continent it has occurred rarely in various localities from Galicia to Dalmatia. It is a veritable tiny gem, but has been but little recognised until quite recent years.

The specimen I sent to Loew, from which his description was made, is the only one I have ever seen with the lovely violet colour, all the others being of the usual green colour.

(To be continued).

DESCRIPTIONS OF FIVE NEW *DERMAPTERA*.

BY MALCOLM BURR, B.A., F.L.S., F.Z.S., F.E.S.

A large number of new earwigs in the National Collection of the Paris Museum have been described by me in an earlier paper (Trans. Ent. Soc. London, 1904, p. 277), but since the appearance of that article I have come across a few further novelties, which are described here in order to be able to quote the species in the final list of the collection. I have added a new species from Java, from among a number of earwigs received for determination from the Amsterdam Museum.

LABIA LAMINATA, *sp. n.*

Corpus pilosum, rufo-testaceum; antennæ flavæ, 10-segmentatæ; caput fuscorufum; pronotum capite angustius, quadratum, postice rotundatum; elytra latiora, punctulata, purpureo-nitentia; alæ valde prominentes, elytris paullo breviores, eodem colore; pedes testacei, fusco-annulati; abdomen depressum, latum, segmentum ultimum dorsale in medio paullo excavatum, utrinque subtuberculatum; forcipis brachia ♂ valida, triquetra, basi ipsa remota, depressa, margine interno laminato-acuta, prope basin in dentem magnum latum acuminatum producta, dehinc denticulis 2 armata ♂.

Long. corporis.....11·6 mm. ♂

Long. forcipis 1·5 mm.

JAVA, Buitenzorg. (M. Weber, in Amsterdam Coll.).

CHÆTOSPANIA CAPELLA, *sp. n.*

Rufo-castanea; corpus pilosum; caput globosum, occipite postice sulcato, utrinque globoso-elevato; antennæ . . . (segmenta 9 restant), flavæ; pronotum angustum, postice quam antice paullo latius, margine antico recto, postico rotundato, lateribus rectis; pars antica tumido-elevata, in medio sulculata, latera et pars postica deplanata ac depressa. Elytra ampla, in apice oblique truncata; alæ amplæ, longæ. Pedes testacei, femoribus tibiisque validis, tarsis gracillimis. Abdomen depressum, parallelum, segmentis 2 et 3 tuberculis lateralibus parvis instructis; segmentum ultimum dorsale magnum longum, quadratum, medio paullo impresso, in margine postico utrinque supra insertionem forcipis tuberculo magno obtuso globoso, in medio spinis 2 parvis nigris instructum; pygidium breve, latum, margine postico in lobis 2 acutos producto. Forcipes brachia in basi remota, valida, triquetra, recta, margine interno denticulato, in tertia parte apicali dente acuto armata, dehinc infuscata, convergentia, acuminata. ♂.

Long. corporis..... 9 mm. ♂.

Long. forcipis 2 mm.

MADAGASCAR, Region du sud-est, Fort Dauphin, Jan. 1901. (Ch. Alluaud, 1 ♂, in Mus. Paris).

Allied to *Ch. fœæ*, Borm., but the form of the pronotum is characteristic; in the shape of the forceps and pygidium it is nearest to *Ch. fœæ*.

ANECHURA TORQUATA, *sp. n.*

Statura mediocri; castanea; caput fusco-rufum vel nigrum, occiput punctis impressis 2 instructum; antennæ (?) 10-segmentatæ, brunneæ, apice nonnihil pallidiores; pronotum capite angustius, subquadratum, margine antico recto, postico rotundato, nigrum, lateribus brunneo-marginatum; elytra lævia, fusco-testacea; alæ fusco-testaceæ, indistincte nigro-signatæ; pedes graciles, fulvi, femorum apice nigro-annulato; abdomen in medio paullo dilatatum, fusco-rufum, segmentis parte antica punctulatis, parte postica lævibus; segmenta 2 and 3 tuberculo magno atro instructa; segmentum ultimum dorsale breve, valde transversum, margine postica recta, in carinam parvam incrassata, superne utrinque in angulis posticis tuberculo forti armatum; pygidium breve, in spinam brevem sed acutam productum; forceipis brachia in basi valde remota et divergentia, dehinc sensim convergentia, in basi triquetra, carina superiori in dentem obtusum producta, tum sursum, tum deorsum sinuata, tum horizontali, apice ipso iterum sursum curvata, margine inferiori medio dentibus 2 fortibus armata, apice ipso incurva et attingentia, rufa.

Long. corporis..... 9·2-10 mm. ♂.

Long. forceipis 4 mm.

TONKIN septentrional; frontière de Chine, Ha-Giang, Oct.—Dec.
2 ♂ ♂ (A. Weiss). Type in Mus. Paris.

Allied to *A. ancylura*, Dohrn, but entirely different in colour.

FORFICULA INTERROGANS, *sp. n.*

Statura minore; antennæ . . . (?) ; caput rufum, nitidum, læve; oculi nigri; pronotum semilunare, castaneum, pallido-marginatum; elytra et alæ castaneæ; pedes testacei; abdomen minute punctulatum, fusco-rufum, tuberculis lateralibus valde distinctis; segmentum ultimum dorsale transversum, inerme; pygidium minimum, conicum, obtusum; forceipis brachia in basi valde deplanata et dilatata, margine interna recta, crenulata, inermi, dehinc attenuata, recta, in apice valde remota. ♂.

Long. corporis..... 7·6 mm. ♂

Long. forceipis 1·5 mm.

INDIA: Darjiling, 1 ♂ (Hamand, 2854-90). (Type in Mus. Paris).

In colour resembles *F. auricularia* in every respect, but distinguished by the unarmed and almost perfectly straight forceps, which are not unlike those of *F. lesnei*.

FORFICULA DAVIDI, *sp. n.*

Statura majore; castanea vel fusca; caput fusco-rufum; antennæ . . . (9 segmenta restant), fuscae, segmento 3 longo, quam 4 and 2 unita longiori; pronotum magnum, quadratum, angulis posticis rotundatis, lateribus paullum reflexis, nigrum, fulvo-marginatum; elytra ampla, lata, longa, unicolora, nigra vel fulvo-castanea; alæ longæ, eodem colore; pedes longi, fuscii, tarsi pallidioribus; abdomen castaneum vel rufum, in medio paullum dilatatum, tuberculis lateralibus segmentorum 2 et 3 valde distinctis, nigris, segmentis omnibus minute punctulatis; pygidium breve, ægre distinguendum, rotundatum, margine postico lobulo quadrato instructum; segmentum ultimum dorsale ♂ breve, transversum, margine postico

superne bituberculato, ♀, tuberculis obsoletis, angustum, declive; pygidium ♀ breve, obtusum; forceipis brachia ♂ deplanata ac dilatata, hac parte brevi, margine interno minute crenulata, declive gracilia, elongata, valde, plus minus deplanata, fere recta, paullo incurva, inermia, in apice attingentia; ♀ typicæ. ♂ ♀.

Long. corporis.....9-14.5 mm. ♂.10 mm. ♀

Long. forceipis6.5-11.2 mm. ♂.4 mm. ♀

MOU PIN, 3 ♂ ♂, 1 ♀ (A. David, 1870). (Type in Mus. Paris)

A very distinct species, characterised by the uniform colour of the elytra and wings, and the form of the forceps, which recalls that of somewhat elongated *E. smyrnensis*; one male has the abdomen very much telescoped, and so appears to be very small.

Royal Societies' Club,

St. James's Street, S.W.:

December 11th, 1904.

TRIPLAX BICOLOR, GYLL., A SPECIES OF COLEOPTERA NEW TO
THE BRITISH CATALOGUE.

BY RICHARD S. BAGNALL, F.E.S.

Early one morning in July, 1904, I came across a piece of fungus growing on elm, in Gibside, in which occurred two species of *Triplax*, and about a fortnight later the same species were met with in some numbers at the same locality (Ent. Mo. Mag., 1904, p. 210; Ent. Record, 1904, p. 260). The commoner of the two, which was in hundreds, was easily identified as *T. ænea*, Schall., an insect usually regarded as rare, but which I had taken not infrequently before in this locality; the others I supposed to be immature specimens of *T. russica*, L., knowing them to be unlike any other species of British *Erotylidæ*, and at the same time having no example of *russica* with which to compare my captures. I sent specimens of both insects to Mr. Holland, as well as to many other Coleopterists, and in a letter dated December 12th, 1904, Mr. Holland stated that my supposed *russica* could not possibly be that species, as on comparing them with authentic *russica*, he found several specific characters which at once separated them from the latter; he thought that they would prove to be *T. bicolor*, of Gyllenhal, described by him in the "Insecta Suecica," vol. i, p. 205. This letter came at a very opportune moment, shortly before I left for Edinburgh to spend a few days with Prof. Beare, where, with his kindly assistance, Mr. Holland's surmise was found to be correct.

In the European Catalogue, and in Ganglbauer's "Die Käfer von Mitteleuropa," vol. iii, p. 643, certain species of the genus

Triplax are separated off into the subgenus *Platichna*, Th. Of those which are now known to occur in Great Britain only *bicolor* belongs to *Platichna*; the other three—*russica*, L., *ænea*, Schall., and *lacordairei*, Crotch—belong to *Triplax sensu stricto*. The characters given by Ganglbauer for these divisions are as follows:—

Triplax:—Base of thorax strongly bordered, or furnished with a strongly marked transverse furrow in front of the scutellum; in shape more or less parallel-sided, elongate-ovate.

Platichna:—Base of thorax throughout very finely bordered, and never provided with a transverse furrow; shape, more or less ovate.

I am indebted to Prof. Beare for the following rough translation of Ganglbauer's description of *bicolor*:—

"*Triplax bicolor*, Gyll.—Usually about the same size as *russica*,* but distinguished from that species by its more ovate form, by the yellowish-red colour of the base of the antennæ, and of the scutellum, and by the fact that the whole of the under-side of the body is reddish in colour. It may also be readily separated from *russica* by the generic characters already given."

General description:—Oblong, moderately ovate, yellowish-red, elytra shining black; antennæ black or brown, with the first two joints, and occasionally the third, rusty-red in colour. The head is large, with the clypeus thickly punctured. The third joint of the antennæ is about half as long again as the second and fourth, the fourth and fifth joints are elongate, the sixth is about as long as broad, and the seventh is slightly, and the eighth distinctly, transverse. The thorax is somewhat strongly contracted in front, and at the base is about twice as broad as long; the sides are finely, and the base very finely, bordered. The elytra are oblong, slightly widened in the basal third; moderately coarsely punctate-striate, with the interstices somewhat strongly punctured. Length, 4·5 to 5·0 mm.

Occurs rarely throughout Central and Northern Europe.

(To be continued).

AMARA ANTHOBIA, VILLA, A BRITISH INSECT.

BY W. E. SHARP, F.E.S.

My friend, the Rev. G. A. Crawshay, recently sent me some specimens of an *Amara*—taken by himself at Leighton Buzzard, Bedfordshire, at roots of grass in sandy places—as questionable *A. lucida*, Duft., drawing my attention to the fact that they possessed the pre-scutellary pore, the absence of which is supposed to characterize that species. On examination it occurred to me that they might be referable to *A. anthobia*, Villa, a species not uncommon in France, and as I could find no authentic specimen of that species here, I sent one of Mr. Crawshay's examples to M. Bedel, who returned it as

* The examples taken at Gibside were on the average smaller than *T. russica*, being intermediate in size between that species and *T. ænea*.

"positively *A. anthobia*, Villa," which species must therefore be added to the British list.

Its position there is next before *A. familiaris*, Duft. From that species and from *A. lucida*, Duft., Bedel distinguishes it by the presence of the prescutellary pore (Coléoptères du bassin de la Seine, i), but Putzeys, in a Monograph of the *Amaræ* of Europe in Marseul's "l'Abeille," 1870, adds further details as follows:—

"Cette espèce, qui a les dimensions de l'*A. familiaris* tient de celle-ci et de la *lucida*. Elle a la taille et la coloration de la 1^{re}, les angles antérieurs du corselet non avancés et les yeux saillants comme dans la 2^{de}; mais elle diffère de l'une et de l'autre par son corselet plus court, plus étroit vers la base, par les côtés de la base, non prolongés en arrière et plutôt reculés; par les fossettes non ponctuées; et par l'existence d'un point pilifère à la base de la strie préscutellaire."

In the specimens I have examined these thoracic differences do not appear to me to be quite convincing, and as the foveæ of the thorax, both of *A. familiaris* and *A. lucida*, are sometimes quite impunctate, the absence of punctures in *A. anthobia* can hardly be taken as a good specific character. The pore, however, at the base of the scutellary stria is very distinct, and in my experience always absent from the other two species.

9, Queen's Road, South Norwood, Surrey:

March, 1905.

MALACHIUS SPINOSUS, ER., IN SHEPPEY: A CORRECTION.

BY G. C. CHAMPION, F.Z.S.

Since the publication of my note on the capture of this species in Sheppey, M. Bedel has been kind enough to send me a ♂ of *M. spinosus*, Er., from La Bernerie (Loire-Inférieure) and a ♀ of the very closely allied *M. vulneratus*, Ab., from Arronville, near Paris (Seine et Oise). On comparing these specimens with the Sheppey insect I find that the latter is really referable to *M. vulneratus*, and must bear that name.

The two species are in fact very similar, *M. vulneratus* differing from *M. spinosus* in its narrower, elongate form, the more slender antennæ, and the absence of the erect blackish hairs on the elytra. Both insects are found upon rushes in marshy places. The distribution of *M. vulneratus*, so far as at present known, is somewhat remarkable: France (Arronville); Saxony (Eisleben); Austria Hungary (Neusiedlersee); Roumania (Macin, Dobrudscha); and Persia.

In Abeille de Perrin's Monograph, *M. vulneratus* is treated as a variety of *M. strangulatus*, Ab.; but later on, on the discovery of the ♂, he separated it as a distinct species (Bull. Acad. Marseille, 1900, sep. p. 18).

I am indebted to M. Bedel for these particulars, M. Perrin's last paper not having been seen by me. It is not unlikely that Mulsant confused two species under *M. spinosus*.

Mr. J. J. Walker, it may be added, has also found a specimen of *M. vulneratus* in his collection. It was taken at Sheerness, probably in 1894.

Horsell, Woking:

February 11th, 1905.

ECTROPIS (TEPHROSIA) CONSONARIA, HB., AB. *NIGRA*, NOV. AB.

BY EUSTACE R. BANKES, M.A., F.E.S.

Antennæ, head, thorax with patagia, abdomen and legs (which are pale-ringed at the joints), all deep fuscous above. *Fore-wings* of the ♂ dull fuscous-black, of the ♀ dull black, with the extreme base white, except on the costa. An elongate white patch, just inside the second line and rather above the middle of the wing, is always present and well pronounced in the ♀, and occasionally so, though usually nearly or quite obsolete, in the ♂. The second line is generally more or less noticeable, owing partly to its being sometimes a shade blacker than the ground-colour, but chiefly to the presence of a narrow dirty whitish line, sometimes obsolete towards the costa, bordering it posteriorly. There is a rather broad subdentate white subterminal line, often obsolete near the costa, and a narrow black discal mark is discernible above the inner edge of the white patch. *Hind-wings* a little paler than the fore-wings, with the extreme base white, a narrow black discal mark, a black postmedian line bordered externally by a narrow dirty whitish line, and a more or less well-defined white or whitish undulate subterminal line. *Cilia* of all the wings pale brown, with a black central transverse line, and the basal half much speckled with black. *Under-side* of all the wings hoary-drab, with a dark discal mark, a faint postmedian and a more conspicuous subterminal whitish line, and a very narrow blackish terminal line: cilia as above, but with the basal half not black speckled.

This extreme melanic form, which appears to be undescribed, has, I believe, only been found in Kent, where it has been sparingly taken by Mr. Edward Goodwin, of Wateringbury, who has also reared it from ova obtained from captured females. I am much indebted to Mr. Goodwin for his kindness in placing at my service, for the purposes of this notice, the finest bred examples of this grand aberration that his cabinet contains, and in enriching my collection with specimens of it. The great majority of black and blackish *Lepidoptera*

fade, rapidly in nature (owing to exposure to the light), and slowly in the cabinet, towards brown, and this seems to be no exception to the general rule.

Evidence that has reached me from various sources establishes the fact that, during the last few years, Kent has proved surprisingly rich in dark and extreme melanic forms of *Lepidoptera*.

Norden, Corfe Castle :
February 4th, 1905.

[This variety was partially described, but not named, by the late Mr. C. G. Barrett in Ent. Mo. Mag., August, 1903, p. 200.—G. T. P.]

The genus Aphodius, Illiger, in the Isle of Man.—The following notes summarize my experience with the genus *Aphodius* in the Isle of Man during the last few years. The Rev. H. A. Stowell evidently did not devote much attention to this group during the time he collected in Manghold Parish, 1860–62, for in his summary of the Manx *Coleoptera* (Zoologist, 1862) he allots but 18 species to the *Lamellicornia*, and in his paper only specifically mentions *A. rufipes*, noting its nocturnal habits and the fact of its often flying to light.

The following species I have met with, as a rule commonly, in the various localities in the Island where I have collected :—

Aphodius fossor, L., *A. fimetarius*, L., *A. merdarius*, F., *A. punctato-sulcatus*, Sturm, *A. prodromus*, Brahm, *A. contaminatus*, Herbst, *A. rufipes*, L., and *A. ater*, de G., the last mentioned occurring in great abundance, especially on the hills in *stercore ovino*, being accompanied by occasional examples of the variety with dull red elytra, the *A. terrenus*, Kirby. These eight species belong to the group of *Aphodii*, all of which are common and widely distributed throughout the British Isles, probably no district of the size of the Isle of Man having any of them absent.

A. erraticus, L. : about 20 specimens have occurred in *stercore equino*, usually in company with *A. luridus* : Bradda Hill, 26.5.03 ; Mull Hills, 21.5.03 ; Poolraish, 27.5.04.

A. fætens, F. : has occurred singly as follows : Mull Hills, 20.8.02 ; Colby, 17.9.03 ; Silverdale, Malew, 10.7.01.

A. nitidulus, F. : one specimen in *stercore equino*, Mull Hills, 10.8.03.

A. rufescens, F. : seven specimens in *stercore equino* ; Bradda, 18.8.03 ; Derbyhaven, 13.8.99 ; Kirk Michael, 31.8.01 ; Mull Hills, 2.8.03, 13.9.02.

A. lapponum, Gyll. : six specimens taken by Mr. W. R. Teare, 24.5.03, near the Round Table between South Barrule and Cronk Fedjag, in *stercore ovino* by the roadside at a height of 1000 feet. This is an interesting addition to the sparse Manx List of northern mountain species.

A. porcus, F. : a few examples have occurred : Port St. Mary, 13.9.03, one specimen on surface of rock pool on the shore : Mull Hills, 23.9.03, three specimens in *stercore ovino et equino* ; Colby Glen, 17.9.04, one specimen by sweeping.

A. pusillus, Herbst : about a dozen specimens have occurred in *stercore equino et ovino* ; Calf Sound, 26.5.02 ; Bradda, 25.5.04 ; Mull Hills, 6.6.04 ; Colby Glen, 11.6.04 ; Poolraish, 26.5.04.

A. oblitteratus, Panz. : one specimen at Kirk Michael, 31.8.01.

A. luridus, F. : has occurred in some numbers at various localities in the south

of the Island :—Mull Hills (200–400 ft.) 11.5.03, 29.5.04, 6.6.04 ; Bradda (250–400 ft.), 30.4.04, 28.5.04, 5.6.04 ; Carnanes and Surby Mountain (500–600 ft.) 22.5.04, 10.7.04 ; Colby Glen, 27.5.04, 5.6.04 ; Poolraish, 26.5.04. I have chiefly met with this species on the hills in *stercore ovino et equino*, but I have also found it on the low limestone cliffs at Poolvaish, and one specimen I swept in Colby Glen.

Out of a total of 100 specimens, eight of the variety with black elytra occurred. No examples with the elytra testaceous, and only the strigæ dark were found, but two examples have the black markings on the interstices small and faintly marked. A small proportion of the specimens may be called dark varieties, the black markings being longer than in the prevailing form, and in some cases coalescing.

Though generally distributed throughout England, Wales, and Scotland, this species appears to be very local in some districts ; for instance, it is quite rare in Lancashire and Cheshire. It is also rare in Ireland, being recorded from only four localities in Ulster, Connaught, and Munster.

A. depressus, Kng. : I have met with fifteen examples : Bradda, 31.5.03, 7.9.02, 6.9.03 ; Mull Hills, 21.5.03, 29.5.04, 6.6.04 ; Ballagawne, Rushen, 28.5.03 ; Carnanes, 22.5.04. Four of these specimens have the elytra of a distinct reddish colour, except near the base, which is blackish ; two have a slight dark reddish tinge on the disc and apex ; the rest are of the usual black colour.

There are therefore, up to the present time, 18 species of the genus *Aphodius* recorded from the Isle of Man. *A. scybalarius*, F., should certainly occur, and will in all probability be met with on the coast, more especially in the sandy district to the north. *A. sordidus*, F., *A. putridus*, Sturm, and *A. plagiatus*, L., though local species may possibly occur in the Isle of Man, judging from their distribution in Great Britain and Ireland. *A. fætidus*, F., might possibly be found, seeing that *A. lapponum*, Gyll., occurs.

A. constans, Duft., and *A. granarius*, L., might just possibly occur, the former having been recorded from Cheshire, Yorkshire, and Northumberland, and as common in the Foyle District, Ireland, and the latter species being frequent on the Lancashire and Cheshire coasts, and being recorded from the Foyle District and near Belfast. We should perhaps expect *A. inquinatus*, F., to be present on the coast, though it must be noted that it has not yet been discovered in any locality in Ireland. It is generally distributed throughout the greater part of England and Wales, becoming rarer towards the north and local in the Tweed and Forth Districts of Scotland, and it is a very common species on the Lancashire and Cheshire sandhills. Mr. E. J. Burgess-Sopp in "The Entomologist's Record" for May, 1904, describes an immigration flight of this species on April 16th, 1904, at Birkdale and Ainsdale on the Lancashire coast, and suggests that the swarm may have come from Cheshire or North Wales, being blown out to sea and then back to land towards sunset. The possibility of a portion of such a swarm alighting in the Isle of Man certainly suggests itself, and on May 14th, 1904, I found the abdomen and elytra of an *Aphodius* which may possibly be this species, in a hollow on the sand dunes near the Point of Ayre, Isle of Man.—J. HAROLD BAILEY, Port Erin, Isle of Man : January 1st, 1905.

Note on Ocyusa maura, Er., and *O. picina*, Aubé.—With reference to the distinctions between *Ocyusa maura*, Er., and *Ocyusa picina*, Aubé, there is, in

addition to the characters pointed out by Mr. Newbery (see Ent. Mo. Mag., vol. xv, 2nd series, p. 252), one that does not seem to have been mentioned, and that is the comparative length of the posterior tarsi. The character would probably be useless for naming a single specimen, but is very plain when series of both insects are placed side by side, and will at once enable a row to be checked. Mr. Newbery has also pointed out to me another difference between the species to which he tells me attention is called by Rey (Aléochariens, Fam. Aléocharaires, p. 420), viz., the number of impressed segments of the hind body. I should then propose to distinguish the two species thus:—

(a) Antennæ more robust; hind tarsi longer, nearly two-thirds the length of the tibiæ; four segments of abdomen transversely impressed at base...

picina, Aubé.

(b) Antennæ less robust; hind tarsi shorter, about one-half the length of the tibiæ; three segments of abdomen transversely impressed at base *maura*, Er.

The colour of the legs is very deceptive, and even that of the antennæ cannot be trusted. I have a specimen of *O. maura* from Ashtead, Surrey, in which the legs are quite light, while in all my *O. picina* they are infusate.—ARTHUR J. CHITTY, 27, Hereford Square, S.W.: *March*, 1905.

Gyrophæna pulchella, Heer, in Scotland.—Among my Forres insects taken in 1892 I see I recorded (Ent. Mo. Mag., 2nd series, vol. iv, p. 259) *Gyrophæna affinis*, but for many years all the *Gyrophæna* taken at Forres belonging to this section with long joints to the antennæ have been standing in my collection as *G. pulchella*. I have no doubt that the record of *G. affinis* was an error, inserted by me before I had examined the male characters. *G. pulchella* seems usually very rare, but was in fact abundant on large fungi growing on the borders of the sandhills in a belt of birch and other trees near Kingcorth. I believe this is the first record out of the London district for *G. pulchella*, Heer. The insect referred to in the same article as possibly *Homalota valida* have been identified by Mr. Newbery as *H. incognita*, Sharp, the 7th segment of the ♂ being truncate, and not crenulate. I had other specimens of *H. incognita* from Forres, and I think there can be little doubt as to correctness of the determination.—ID.

Longitarsus curtus, All., in Kent.—Last October I took near Dodington, Kent, a single example of a *Longitarsus*, which agrees in all respects with the specimen of *L. curtus* which Mr. Tomlin was good enough to give me. I am told, however, that my insect does not agree with Allard's description, but as in this difficult genus not even puncturation can always be relied on, I offer no opinion, but merely record an undoubted fact.—ID.

[I have long had specimens of the same species, from Caterham and Arundel, standing in my collection as *L. atriceps*, Kutsch.—G. C. C.]

Neoclytus erythrocephalus, F., in Lancashire.—I received lately two specimens of a Longicorn beetle from Mr. F. R. Dixon-Nuttall, of Prescott, Lancashire, which had been taken in an ash tree felled on a farm in that district. The beetle proved to be this North American species. The occurrence of isolated examples of this and other species of exotic *Longicornia* is of course not unusual in England. In

this case, however, the interest of the record lies in the fact that these specimens had been *bred* here and were taken from the larval gallery seven inches from the outside of the tree. This was testified by a piece of the wood which Mr. Dixon-Nuttall was good enough to send me displaying the galleries. A credible explanation of the origin of the progenitors of these specimens is afforded by the fact that some years ago new gate posts were put down in or near this farm, some of which were made of American ash. —W. E. SHARP, South Norwood: *March 10th*, 1905.

[The late Mr. P. B. Mason has recorded the capture of *N. erythrocephalus*, with another North American species, *N. caprea*, Say, at Burton-on-Trent, in an ash tree which had been brought from Carrick-on-Suir, Ireland. *cf.* Ent. Mo. Mag., vol. xxxiii, p. 91 (1897). —J. J. W].

Anisotoma furva, Er., at Skegness.—On Sept. 11th, 1904, at Skegness, Lincs., by searching in the hollows on the sand-hills between 5 and 6 p.m. I took amongst a host of common beetles, 5 *Anisotomas* made up of one *A. dubia*, Kugel. (small var.), one *A. ovalis*, Schm., and three of the rare *A. furva*, Er. (two ♀, one ♂). They have been examined and the names kindly supplied by Mr. G. C. Champion. —E. W. MORSE, 9, Hill Top Mount, Roundhay Road, Leeds: *March 15th*, 1905.

Ptinus tectus, Boield.: *Synonymic note*.—This species was first introduced by Boieldieu in his "Monographie des Ptiniore" (Ann. Ent. Soc. Fr., 1854, 652). He gives *P. pilosus*, White (Voy. Ereb. Terr., 1846, xi, 8), as a synonym, and this synonymy has been reproduced in various catalogues. The type of White's *pilosus* (which is labelled "*pilosulus*") is in the British Museum. Boieldieu's type is in the possession of M. Bedel, and he has been kind enough to carefully compare British specimens received from me with this type. Upon comparing these with White's *pilosus*, it is evident that there is not the slightest resemblance between them. White's insect is an elongate, parallel-sided insect, with close, decumbent, somewhat greenish-grey pubescence, and is from New Zealand. It is remarkable that in some points Boieldieu's description agrees better with White's insect than with my examples referred to above; indeed, the description is a bad one for what we now call *Ptinus tectus*, nor does it altogether accord with White's *pilosulus*. —E. A. NEWBERY, 12, Churchill Road, Dartmouth Park, N.W.: *February 15th*, 1905.

Diptera in the New Forest.—Mr. A. E. Gibbs, of St. Albans, has lately sent me for determination a number of *Diptera* collected for him by Mr. W. Brameld, of Brookenhurst. Among them are several species which may be worth mention as usually rare, though some of them are not uncommon in the New Forest. I cannot give the dates and localities, but all were taken in that district and almost all in 1904.

Of the *Nematocera* I would only mention *Limnobia annulus*, Mg. A fine and very local species, and *Pedicia rivosa*, L., not perhaps uncommon, but a large and very handsome insect.

Of the *Brachycera*—*Atylotus fulvus*, Mg., and *Chrysops quadrata*, Mg., seem to have been common in the Forest, as well as several other *Tabanida*. To these may be added the pretty *Oxycera pulchella*, Mg, the exotic looking *Anthrax fenest-*

tratus, Fln., and the strange little *Oncodes gibbosus*, L. The *Syrphidæ* were well represented, though mostly by common species; the following, however, are usually scarce, *Melangyna quadrimaculata*, Verr., *Xanthogramma citrofasciatum*, Deg., of this there was only one specimen, though there were several of the much commoner *X. ornatum*, Mg., *Eristalis cryptarum*, F., ♂ and ♀, *Xylota lenta*, Mg., and *Chrysotoxum elegans*, Lw.; this latter though usually scarce would seem to be not uncommon in the Forest.

The best *Conopidæ* were *Conops vesicularis*, L., ♂ and ♀, and *C. ceriiformis* Mg., the former used to be considered a great rarity, but is apparently not so now. To these I would add *Hypoderma? lineatum*, Vill., probably common in the larva state, the two fine Tachinids, *Echinomyia grossa*, L., and *Alophora hemiptera*, F., neither of which seem scarce, *Helomyza pectoralis*, Lw., *Phaemyia fuscipennis*, Mg., *Pteropæctria afflicta*, Mg., and *P. palustris*, Mg., and last, but not least interesting, the rare *Icterica westermanni*, Mg., of which ten specimens were taken by sweeping rushes at Milford soon after harvest.

Mr. Andrews has kindly sent me a list of species from the New Forest, taken during the last and previous seasons. The following seem worthy of mention, besides those given in his note (Ent. Mo. Mag., March, 1905, p. 71), *Xanthandrus comtus*, Harr., *Didea fasciata*, Meq., *D. intermedia*, Lw., *Volucella inanis*, L. (taken by Mr. Brameld), *Mallota cimbiciformis*, Fln., and *Mgiolepta luteola*, Gmel.—E. N. BLOOMFIELD, Guestling: March, 1905.

Rhamphomyia tenuirostris, Fal., taken in the New Forest.—Among some *Diptera* recently received from Mr. Carter was a specimen of this species, taken in Arran, and on placing it in my cabinet I was surprised to find three specimens under this name, about which I had quite forgotten. On referring to my catalogue they proved to have been taken at Lyndhurst; two in September, 1900, and the other in September, 1901; and there is also a note showing that at the time I was doubtful as to the name being correct, as this species is not included in the British list. Mr. Grimshaw, in his "Diptera Scotica," records a single female taken at Glencorse, September 8th, 1898, and adds: "The only other British record of this species with which I am acquainted is that given by Col. Yerbury in the 'Irish Naturalist,' March, 1902,' where he mentions a specimen taken at Loo Bridge, in Ireland." Curtis, however, recorded it about the year 1825 from a female specimen taken in the Isle of Wight, so although it may not be often met with, it is evidently widely distributed. I am informed Mr. Grimshaw considers the generic name, *Macrostomus*, Wied., has priority.—F. C. ADAMS, 50, Ashley Gardens, S.W.: March 2nd, 1905.

Dr. Reuter on the Urostylinæ.—In his interesting remarks on this subfamily of the *Pentatomidæ* (ante, p. 64), Dr. Reuter—who follows Dallas in considering that the *Urostylinæ* constitute a distinct family—has made some reference to my first volume on the *Rhynchota* of British India, which may perhaps create a wrong impression. His remarks may be taken to suggest that I have not noticed his genus *Eurhynchiocoris*, which he described in 1881. This, however, is not the case; at the foot of my Synopsis of the genera I have added the following note:—"The

genus described by Reuter under the name of *Eurhynchiocoris* belongs to this subfamily, but I have not seen it, and it is impossible from the description to arrange it in the synopsis, as Reuter has not mentioned the presence or absence of ocelli." At pp. 312-13, I have enumerated the genus and species, copying his description, including the length of rostrum, but stating that I had not seen them.

Dr. Reuter also remarks that the structure of the spinous odoriferous orifices is reproduced in Distant's drawings, "although he has not attached any particular weight to it." This criticism needs qualification; so far from attaching no weight to this character, I have throughout the volume, with few unavoidable exceptions, given a careful figure of that character with each generic illustration.

In my introduction I stated, "I have not attempted written descriptions of such details as the important but obscure odoriferous apertures to be found in the metasternum. These, by the aid of joint effort with the artist, have been so accurately portrayed, as to prove that a good figure of a functional structure is far more trustworthy than any diagnostic composition."

As I have stated, these volumes on the Rhynchotal fauna of British India are faunistic publications, and not taxonomical treatises, and the editorial decision is that brevity in description is better followed. However, I expect that both Dr. Reuter and myself agree on most points, save that with most Rhynchotists I regard the *Urostylinæ* as a subfamily only of the *Pentatomidæ*, and that I attach more importance to the presence or absence of ocelli than he—possibly through an inadvertence—appears to do.—W. L. DISTANT, Steine House, Selhurst Road, South Norwood: *March*, 1905.

Obituary.

Alfred Beaumont.—It is with sincere regret that we record the death of Mr. Alfred Beaumont, which took place suddenly at his residence at Gosfield, Essex, on the evening of Monday, February 21st, in the seventy-fourth year of his age. He was a subscriber to this Magazine from its commencement, and an occasional contributor to its pages, but he wrote little himself on his Entomological work, often preferring that others should record his captures and observations, as the Entomological Journals and books show. He was one of the oldest field naturalists in the country, and almost the oldest Fellow of the Entomological Society of London, having been elected in 1851.

Born at Honley, near Huddersfield, his early schooldays were spent at Storthes Hall, under the tutorship of the late Mr. Peter Inchbald, who in his day was well known throughout the country as a successful Entomologist. As schoolfellows he there met the late Mr. J. W. Dunning and Mr. T. H. Allis, both of whom with himself soon imbibed their master's zeal for Entomology, which all three retained to the end of their lives. It was at Storthes Hall too, we believe, that he first met as a visitor to Mr. Inchbald the late Mr. H. T. Stainton, and the subsequent long years of intimate friendship between Inchbald, Stainton, Dunning and Beaumont was only broken by the death of each. On leaving school, Mr. Beaumont joined his father's large woollen manufacturing business at Steps Mills, Honley, and subsequently became the head of it. He early became associated with the Huddersfield Naturalists' Society, then chiefly composed of working men, and

by his active and enthusiastic interest in it, soon made it a large and prosperous Society. For a considerable period, now nearly forty years ago, he was its President, and the life and vigour he put into it are well remembered by those of its members who still survive. He used to take the lead in the inauguration of large and successful exhibitions of natural history specimens, of a fortnightly duration in one of the then largest halls in the town.

At that time Beaumont was as keen an Ornithologist as he was a Lepidopterist, and his fine collection of British birds was known far and wide, as well as his collection of *Lepidoptera* which contained many valuable species.

Nothing could exceed the generosity of Beaumont in the matter of his duplicates. It was his delight to spread open his boxes before his friends, and absolutely make them take out everything they wanted; whilst his scorn for the too prevalent system of bargaining with duplicates, was intense. Nor can the writer forget the happy days long ago when Beaumont used repeatedly to drive him (then little more than a schoolboy) for an afternoon's collecting in the woods at Storthes Hall, nor the enjoyable repasts at the Inn near by, when the day's work was over.

On the removal of Beaumont from Honley, his collections were disposed of, with the exception of a few of the rarities from each which he retained. The birds now form the chief portion of the beautiful collection in the Museum of the Technical College, Huddersfield.

After a prolonged visit with his wife to Mr. and Mrs. Stainton at Mountsfield, he settled in 1884 near his friend's residence at Lewisham. Beaumont's zeal for collecting soon again impelled him to active field work, but his energies were now directed to several of what have been termed the "neglected orders of insects." He did splendid work among the *Coleoptera*, *Hymenoptera*, *Neuroptera* and *Diptera*, repeatedly finding species new to the British List, and in some cases new to Science. Perhaps his favourite locality of late years was the lovely district of Oxshott in Surrey, where he detected as new to Britain the interesting lace-wing fly, *Chrysopa dorsalis*, and we believe several species of *Hymenoptera*. He seemed never tired of collecting and setting his captures, and up to the time of his death, his setting of the most minute insects was a marvel of neatness. But the naming of his captures was always irksome to him; he usually sent his doubtful species to specialists, often to *their* advantage, as they frequently were allowed to retain the specimens of even new species, if there happened to be more than one of each. In 1885 Beaumont, whilst stripping off bark searching for beetles, at Lewisham, happened to come across the then rare *Ochsenheimeria vacuella*, and afterwards found that the moth was very plentiful under bark in the district. He used to relate with great glee the story of his introduction of Mr. Stainton to the species. Calling on Mr. Stainton at Mountsfield to acquaint him with his find, Beaumont told him he could almost guarantee to find the moth in his (Mr. Stainton's) own grounds. Mr. Stainton was incredulous, but on Mr. Beaumont's invitation he walked into the garden with a supply of boxes. Mr. Beaumont very soon found for him the insect in plenty, and by the time they had got round the grounds, Mr. Stainton had not only filled his boxes with a "Micro" he had never even suspected to occur there, but had been obliged to transgress one of his own favourite sayings, which was, "never put more than one moth in a chip box," for numbers of his boxes contained two apiece!

On relinquishing commercial life more than two years ago, Mr. Beaumont removed from London to the pretty village of Gosfield, in Essex, where he and his estimable and devoted wife had made a charming home, and where they hoped to have spent a few more years together, in the quiet pursuits of country life. This they had every reason to anticipate, as Mr. Beaumont had all his life been a strong, active man, and it was only a few weeks ago that an apparently slight heart trouble gave cause for uneasiness, but on the evening of the day already mentioned, whilst actually sitting at the table working at his insects, he suddenly passed away. Truly he died in harness.

He was twice married, but lost his first wife many years ago, when the beautiful Church at Wilshaw, near Huddersfield, was erected to her memory. His second wife survives him, and we are sure that the sympathy of all his Entomological and other friends will go out to her in the heaviest of all blows which could have come upon her.—G. T. P.

Frederick Octavius Pickard-Cambridge, B.A., F.Z.S., M.B.O.U., whose tragic death took place at Wimbledon on February 9th last, at the age of forty-four, was born at Warmwell, Dorset, where his father, a member of a well-known county family, was Rector for many years. Having graduated from Exeter College, Oxford, whither he proceeded from Sherborne School, he held a private tutorship before his Ordination, after which he served for a time as a Curate at Carlisle. Subsequently, however, abandoning his profession, he resided near London, illustrating and writing works on Natural History, and only shortly before his death he obtained an appointment as Arachnologist in the British Museum. Fired some years ago, by the enthusiasm of his uncle, the Rev. O. P. Cambridge, F.R.S., Frederick thenceforth devoted himself specially to the study of the *Arachnida*, on which group his contributions to Science have been very numerous and valuable. A keen, all-round Naturalist, however, he paid some attention at various times to the *Coleoptera* (his captures of *Scydalius oblongiusculus* in Dorset being particularly noteworthy), *Lepidoptera* and *Neuroptera*—to say nothing of Ornithology and Oology, and was an excellent observer and collector, gifted, moreover, with exceptional ability with both pencil and brush. A pleasant companion, with a strong vein of humour that often found play in clever sketches, adding point to his amusing letters, the subject of this notice, who was never married, will be sorely missed by his many relatives and friends.—EUSTACE R. BANKES.

The Rev. Francis Walker, D.D., F.L.S.—We regret to learn of the death of this amiable Entomologist, which took place recently at his residence at Cricklewood. The only son of the late well-known Francis Walker, of the Natural History Department of the old British Museum, he early devoted himself to the study of insects, and especially to that of exotic butterflies, of which he formed a large collection. Although he wrote little, if anything, of serious scientific value, his notes on the Entomology of Iceland, Palestine, and other countries that he visited at various times, are very pleasant and interesting. He was a Fellow of the Linnean and of the Entomological Society, having joined the latter as long ago as 1870, and his portly presence and genial address will be greatly missed from its meetings.

Societies.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY :
December 8th, 1904.—Mr. E. STEP, F.L.S., Vice-President, in the Chair.

Mr. Grosvenor, of Red Hill, Surrey, was elected a Member.

Mr. Tonge, a donation of some 35 species of British *Lepidoptera*. Mr. Main, *Orthoptera* from Borneo and the Cape. Mr. West, a specimen of the extremely rare Coleopteron, *Tropideres sepicola*, taken by him in the New Forest in the summer of 1904. Mr. Edwards, the parasitical bee, *Culioxys elongata*, from Blackheath, and read notes on its habits. Mr. Dobson, series of *Geometra vernaria* and *Aglossa cuprealis*, which had come to light at dusk around his house at Maldon. The remainder of the evening was devoted to an exhibition of lantern slides by Messrs. Tonge, ova of *Lepidoptera*, Goulton and Step, Lepidopterous larvæ, and Main resting positions of larvæ and imagines of *Lepidoptera*.

January 12th, 1905.—Mr. E. STEP, Vice-President in the Chair.

The President referred to the death of Mr. C. G. Barrett who had been a former President of the Society, and it was unanimously agreed to send a letter of condolence to Mrs. Barrett and family.

Mr. Main exhibited *Panorpa communis*, and *P. germanica* from Folkestone. Mr. Lucas, *P. cognata*, the rarest British scorpion-fly and the other two species for comparison, with a female of *P. cognata* taken during the Field Meeting at Byfleet, on July 23rd, also *Chrysopa ventralis* from the same locality. Mr. Goulton, photographs of Lepidopterous larvæ. Mr. Joy, varieties of *Epinephele hyperanthus* (1) with white ocelli on the upper-side of the hind-wing, (2) with the ocelli on the under-side wholly or partially reduced to mere dots = var. *arete*, and (3) with elongate ocelli on the under-side = ab. *lanceolata*. Mr. R. Adkin gave an account of the Annual Meeting of the South Eastern Union of Scientific Societies, which he attended as the Society's delegate, and read the Report of the Field Meeting held at Eynsford on June 25th, 1904. Mr. Lucas read the Report of the Field Meeting at Byfleet on July 23rd, and then showed a number of lantern slides illustrative of Protective Resemblance in Insects, kindly lent him by Mr. Hamm of the Hope Museum, Oxford.—HENRY J. TURNER, *Hon. Secretary*.

ENTOMOLOGICAL SOCIETY OF LONDON : *March 1st, 1905.*—Mr. F. MERRIFIELD, President, in the Chair.

The Duke of Bedford, K.G., President of the Zoological Society, &c., of Woburn Abbey, Beds., and 15, Belgrave Square, S.W. ; M. Lucien Chopard, Membre de la Société Entomologique de France, of 98, Boulevard St. Germain, Paris ; Mr. Wilfrid Fleet, F.R.A.S., of "Imatia," Bournemouth ; and Mr. Robert Sidney Mitford, C.B., of 35, Redcliffe Square, S.W. ; were elected Fellows of the Society.

The decease of M. Henri F. de Saussure, of Geneva, Honorary Fellow, and of Mr. A. Fry and the Rev. Francis Augustus Walker, D.D., was announced.

Mr. H. St. J. Donisthorpe exhibited an example of *Oxyptoda sericea*, Heer, taken in Dulwich Wood, June 17th, 1904, a species new to Britain; also *O. nigrina*, Wat., with a type lent by Mr. E. A. Waterhouse, to demonstrate that it is not synonymous with *O. sericea* as stated on the Continent; and *O. exigua*, which is also there regarded as synonymous with *O. nigrina*. Mr. Hugh Main and Mr. Albert Harrison, a long series of *Colias edusa*, with var. *helice* (bred from one ♀ *helice* by Dr. T. A. Chapman from the south of France) to show the proportion of type and variety obtained; they also showed the results of similar experiments with *Amphidasys betularia*, bred from a ♂ var. *donbledayaria*, and a type ♀ taken in cop. at Woodford, Essex, in 1903. Mr. R. Priske, a specimen of *Helops striatus*, with a photograph showing an abnormal formation of the right antenna, which was divided into two branches from the fifth joint. Mr. Percy H. Grimshaw, examples of *Hydrotia pilipes*, Stein, ♂ and ♀, the latter sex being previously unknown, and specimens of *Hydrotia tubercula*, Rond., not hitherto recorded in Britain, captured by Mr. C. W. Dale and Dr. J. H. Wood in various localities. Dr. F. A. Dixey, some cocoons and perfect imagines of hybrid *Saturniids*, including ♂ and ♀ of *S. pavonia*, L., × *S. pyri*, Schiff., with added specimens of both sexes of the parent forms for comparison, the cross product resembling a large *S. pavonia*, rather than a small *S. pyri*; the exhibit further included three ♂ ♂ and three ♀ ♀, of which the ♀ parent was *S. pavonia*, and the ♂ parent a hybrid between *S. pavonia* ♂ and *S. spini* ♀, viz., the cross product to which Professor Standfuss has given the name of *S. borne-manni*. These six individuals had been reared from ova supplied by him, and Dr. Dixey gave an account of their life-history; the remaining four examples of the hybrid = *S. schaufussi*, disclosed far less strongly marked sexual differences than in *S. pavonia*. Prof. E. B. Poulton, groups of Synaposematic *Hymenoptera* and *Diptera* captured by Mr. A. H. Hamm; three broken specimens of *Papilio hesperus* taken at Entebbe in 1903 by Mr. C. A. Wiggins, showing that the tails of a *Papilio*, if untouched by enemies, can endure a great deal of wear; and Nymphaline butterflies from Northern China, apparently mimetic of the male *Hypolimnas misippus*, which is not known to occur in that region. The President, a number of examples of *Pyrameis atalanta*, illustrating the effects of cold season breeding by Mr. Harwood of Colechester, some of them lent by Mr. R. S. Mitford.

Mrs. De la B. Nicholl read a paper on "Butterfly Hunting in British Columbia and Canada," illustrated by numerous examples of the species captured during the summer of 1904. Sir George Hampson communicated a paper "On three remarkable New Genera of *Micro-Lepidoptera*." Mr. Herbert Druce, a paper entitled, "Descriptions of some New Species of Diurnal *Lepidoptera* collected by Mr. Harold Cookson in Northern Rhodesia in 1903-4; *Lycanidæ* and *Hesperiidæ* by Hamilton H. Druce." Mr. F. Du Cane Godman, a paper entitled, "Descriptions of some New Species of *Satyridæ* from South America." Mr. W. L. Distant, a paper entitled, "Additions to a knowledge of the Homopterous Family of *Cicadidæ*."—H. ROWLAND-BROWN, *Hon. Secretary*.

SOME OBSERVATIONS ON *HASTULA HYERANA*, MILL.

BY T. A. CHAPMAN, M.D.

I took a good deal of interest at Cannes, for some years, in *Tortrix unicolorana* feeding on *Asphodelus albus*, in the Esterel. I found the study of this species very attractive, owing to the peculiar circumstance, that of all the Lepidopterous larvæ I knew anything of, that of this species is the only one that certainly confers a favour on the plant it devours. *T. unicolorana* occurs as a single larva to a plant; when, very rarely, two occur together, there is little doubt the second one is from an egg laid by a second parent, and the accident is an undesired one.

When first the larva shows its ravages, when the *Asphodel* leaves are only a few inches above ground, it looks as if the plant were to be severely punished. As time goes on, however, the larval ravages do not increase much, and the plant grows vigorously. At one stage the outer leaves, or even all the leaves more or less, have a few inches of the tips fastened together by the larval silk, the larva living within this shelter, the leaves a foot or rather less long, instead of falling apart are held together as a tent or sheath over the now just appearing flowering stem. It is just at this period that severe frosts occasionally occur; in two different seasons I have seen, in the Esterel, ice an inch thick on the rock pools and the little streams, and more than twelve inches at trickles of water over rocks and banks. In both these seasons I also noticed that the flowers of the *Asphodel* were in many cases much injured, but never in those cases where they were protected by the tent of *T. unicolorana*. As the *Asphodel* grows and the leaves become two feet or more long, the spinning of the larva still holds their tips together, and they fall to one side, but look no more deformed than if they had been blown so by the wind. The total damage to the plant is little more than what appeared in earliest spring. A very small price for the plant to pay for insurance against damage to its inflorescence by frost.

PLATE II.

In many parts of the Esterel I have seen nearly every plant of *Asphodel* tenanted by a larva of *T. unicolorana*.

Tortrix unicolorana is not so abundant at Hyères as in the Esterel, but it occurs freely enough here on the *Asphodelus microcarpus*. I was naturally very desirous to make the acquaintance of *Hastula hyerana*, of which I knew nothing, except that it was rather later than *T. unicolorana*, and replaced it at Hyères. I was accordingly pleased



ASPHODEL WITH TORTRIX UNICOLORANA.

By an unfortunate oversight the number and title of Plate II has been transferred to Plate III. The title of the Plate in the April No. should read "Asphodels with *Hastula hyerana*," and should be numbered "III."—Eds.

this spring to be able to study the habits of *H. hyerana*. As *T. unicolorana* is frequent enough at Hyères, and a direct comparison showed the habits of the two species to be very different, it proved clearly to be quite misleading to say in any sense that the one replaces the other.

The great differences in habit between the two species are that *H. hyerana* is gregarious, a good many larvæ occupying one plant; it eats anywhere, in all directions, eating the flower stem, inflorescence, leaves, or anything, and damages the plant seriously. *T. unicolorana* pupates amongst the leaves it has eaten, and emerges very early, pupates in March and emerges by the end of the month, at which date the larvæ of *H. hyerana* are becoming full-fed and wandering off to make their cocoons, in which they pass the summer as larvæ.

PLATE III.

In March *H. hyerana* may be found in plants a foot or more high, several larvæ, up to eight or ten when full grown, probably more when younger, are found on a plant. The bundle of leaves are fastened together for their whole length, and the larvæ may be found making galleries between the leaves and through them, and lining them with silk, with which they also protect any outer openings. A week or two later, in places where the insect was less abundant, and where it had not succeeded in tying all the leaves of a plant together, but had allowed the flower stem to break through, this would be bent and crooked, and evidently unable to fully develop, in these would be found one or two larvæ of *H. hyerana*, making their galleries amongst the flower buds and into the stem. It was, from his description, chiefly larvæ of this sort that M. Millière took. It seemed as though one or two larvæ alone were unable, either by their rapacity or by the silk they spun, to prevent the strongly growing leaves from developing and separating themselves, as was easily done by a colony, and so they had to take refuge amongst the irregular mass of flower buds which, in a well colonised plant, rarely was able to show itself at all.

I gave the larvæ, to pupate in, sheets of paper, sufficiently crumpled not to lie quite flatly together, and in the spaces thus formed the full-fed larvæ seemed to find places that perfectly contented them.

The larvæ on Lupin tied the leaves together in a very ordinary *Tortrix* fashion, living in a mass of tied together leaves. In my boxes they made these into considerable masses, but not more than one may see sometimes our common *Tortrices* do on, for example, a vigorously growing bramble shoot.

The distribution of *H. hyerana* in the south of France appears to be very limited, apparently it occurs over a considerable area in Spain and Africa. The neighbourhood of Hyères seems to be the only French habitat. I have no data for deciding how far its restriction is due to climate, and how far to food plant.

At Hyères its food plant is *Asphodelus microcarpus*, Vir. The names and synonyms of these *Asphodeli* are very profuse and intricate, but this species seems now to be recognised by the name *microcarpus*, and its synonyms sunk. I do not know the distribution of this plant westward of Hyères, but eastward it is very limited (I have certainly seen it in various places in Spain, but I am discussing the French area).

At Hyères the *A. microcarpus* is widespread, occurring freely on the hills close to Hyères, and down close to the beach at La Plage, some two or three miles off. Along the coast and coast hills it is more or less abundant eastward at Bormes, Le Lavandou, and Cavalaire, though the *Tortrix* does not seem abundant even if present beyond Le Lavandou and at St. Croix, some 27 miles from Hyères the *Asphodel* ceases. At Ste. Maxime (36 miles) there is no *Asphodel* whatever. Beyond this there is one little patch just past Ste. Raphael, and a small field is crammed with it a little way from Agay. The *Tortrix* is apparently not present here. There is also a small colony of the plant on the Ile Ste. Marguerite, Cannes, which I have always found very clean from any kind of insect attack.

The *Asph. microcarpus* fails entirely then as, going East, we reach the Esterel. *A. albus* occurs all over these mountains, and in places is abundant. Though *Tortrix unicolorana*, which affects both *Asphodeli*, is here abundant, there is no trace of *H. hyerana*.

Having thus arrived at the conclusion that *H. hyerana* is very particular as to its food plant, and sticks to one *Asphodel* and refuses another, which can only be discriminated by some little care, and one would suppose would be just as palatable, we discover a further fact that makes such a conclusion very doubtful. One day Mr. Raine gave me some *Tortrix* larvæ which he had found near Le Lavandou, on a rather rare Lupin, *Lupinus cryptanthus*, Shuttleworth, with a blue flower. The same Lupin was common at Ste. Maxime, but it afforded no larvæ. I nourished these larvæ on general principles, expecting indeed they might be something good, the plant being a rare one, and finally they spun up. I was somewhat astonished to find they did so in just the same manner as *H. hyerana*, taking in the same way a colourless æstivating form. I concluded I had got a good thing,

viz., another *Tortrix* allied to *H. hyerana*, not unmixed with doubts for which I could remember no possible foundation, except the resemblance, that I had got my cocoons somehow shuffled together. I awaited the result with some expectancy, and ultimately there came out at the same time as the rest of the *hyerana* two specimens of that species, a pale and a dark one.

This did not absolve me from the suspicion of muddling them, in fact, it rather made it somewhat possible. But having obtained eggs, I found the young larvæ took very kindly and at once to each of two common garden perennial Lupins; so that the Lupin is clearly an alternative food plant. This, considering how common Lupins, of one sort or another, if not *L. cryptanthus*, are on the Riviera, and not unfrequently cultivated as a crop, shows that the localization of *H. hyerana* cannot be due altogether to the want of available food.

The Asphodel shoots on my young plants were so weak that a few larvæ wrecked them at once, so that I should have done nothing with the young *hyerana* larvæ but for this unexpected knowledge of an alternative diet.

One of the peculiar habits of this species is that when the larva has spun up at the end of March, it does not change to pupa, but after a period I do not accurately know, but probably about two weeks. In one instance in 1905, spun Feb. 12th, moulted to pale form Feb. 23rd; it moults into a larval form, differing little from that it thus quits, except by the paleness and colourlessness of the chitinous skin, the skin points are no longer dark and the chitin of the head is quite pale, the hairs are about half the length, *e.g.*, the longest on anal plate were 2 mm., they are now just 1 mm., the internal anatomy exhibits little but pale yellowish fat bodies, so that instead of greyish olive-green, the larva is now a pale straw colour, curiously similar to that of the imago. It continues in this state till the following August before pupating. It possesses jaws very like those it has just cast, but uses them for nothing except to eat the cast larval skin. It then fixes the cast head, which it does not eat, by a little more spinning, before taking the long summer rest. An empty cocoon presents, the protruding pupa case, the pale larval skin cast at pupation, and a darker larval head behind some silk, and usually one pellet of frass. Several cocoons afforded a wretched history of cannibalism, probably perpetrated by a few of my last larvæ, that I thought had done feeding, before they really had, and so in default of other food attacked their earlier spun-up brethren. In such a case one finds, besides the skin cast at pupation, two ordinary heads,

and a pale head and possibly some remains of an æstivating larva, all these fixed behind a little silk. In one case I found five heads showing that the first cannibal, had been in his turn eaten by a later intruder.

The species was first described by Millière forty-eight years ago, under the name of *Hastula hyerana*. His reasons for giving it a new genus do not seem now to be approved by the authorities, and they have sunk *Hastula* as a synonym of *Epagoge*, Hb. (= *Dichelia*, Gn.). They are probably right, but I estimate (and in this I may be wrong) that the new fact of the larva having a special æstivating instar, entitles it to a separate genus, at any rate till we learn more of its relatives and of what precise value this biological fact is. I, therefore, in these notes re-instate *Hastula*, Mill., as the generic name.

The neuration agrees with that of *Pandemis*, as given by Meyrick, and hardly with that of *Epagoge*, though all these genera are very close together. The pupa rather suggests *Pandemis* as the nearest ally.

(To be continued).

LIFE-HISTORY OF, AND NOTES ON, *LEUCANIA FAVICOLOR*,
BARRETT.

BY PAYMASTER-IN-CHIEF GERVASE F. MATHEW, R.N., F.L.S., F.E.S.

(Continued from page 80).

When the eggs appeared to be near the point of hatching, the lids of the chip boxes in which they were deposited were placed in the jars so that they just rested against the food, which enabled the larvæ to crawl to and fro from one to the other, for after feeding, for the first week or ten days, most of the little larvæ retired again in family parties beneath the flakes of chip, but after this period they became too large, and had to shelter themselves in the crinkled paper, or among their food. They continued to feed and grow in a satisfactory manner until the end of the year, by which time many were far in advance of the others, and were more than half grown; then some of them began to die off, and so an addition was made to their food, and some pieces of *Dactylis glomerata* were introduced. The breeding cages were kept throughout the winter upon a table in front of a window facing south. Sometimes there was a fire in the room, but not regularly. The larvæ could not in the strictest sense of the term be said to hibernate, for on most nights, whatever the temperature might be, a few of them were to be seen crawling about or nibbling at their food. It is true that they were not particularly

voracious during mid-winter, but some of them appeared to have larger appetites than the others, and to grow faster.

On March 21st, the corrugated paper in all the breeding cages was examined, and the tubes were carefully opened, and I was sorry to find many dead and shrivelled bodies, so many indeed that out of about two hundred larvæ that were alive and well at the beginning of October only eighty remained. Some of these were now approaching full growth, and were removed to moderately large flower-pot breeding cages filled with a mixed compost with chopped moss and cocoa-nut fibre on the surface for the larvæ to pupate in, a wide-mouthed bottle for food buried to its neck in the earth, and with the usual wire hood and muslin cover. Fresh pieces of rolled corrugated paper were tied in an upright position to the wires of the frame.

On April 13th, as several of the larvæ were now apparently full grown, I examined the pieces of corrugated paper again, and found that two larvæ were spinning cocoons composed of bits of paper and silk in the tubes, so they were taken out and put in a box with some moss, and all the pieces of corrugated paper were removed from the breeding cage. By the end of May most of the larvæ had disappeared, and of the few that remained some were still small.

When full grown the larvæ retired beneath the surface and spun a fairly tough cocoon composed of silk and pieces of chopped moss and particles of earth, and in this changed to ordinary *Noctua*-shaped pupæ of a bright, shining, reddish-brown colour. The pupa stage lasted from four to six weeks, and a few days before the moth emerges the pupa I had removed from its cocoon for the purpose of watching began to deepen in colour, and the day before the moth came forth had become of a fuscous-leadene hue, with eye coverings nearly black.

On June 5th the first moth emerged, a fine typical specimen, and the offspring of a yellow female, ab. *lutea*, Tutt. From this date up to July 15th, twenty-seven were bred, of which eleven were the red ab. *rufa*, Tutt, the others being all more or less typical, and not one of them in any way resembling *pallens*. The parents were, one typical, one ab. *rufa*, and one ab. *lutea*. Several ab. *rufa* were bred from each parent, but not one ab. *lutea*, which seems to be a rare variety.

I had a small brood of the larvæ of *L. pallens* feeding at the same time as those of *favicolor*, and was able to compare them at various stages of their growth, but up to the time of their becoming half grown there was not much difference between them, excepting perhaps that the latter always seemed to be generally of a warmer

colour, less attenuated, larger, and more plump. When, however, they reached their last skin the difference was much more marked, the larvæ of *favicolor* being then cylindrical, short, and plump, very slightly attenuated towards each extremity, and their general colour was of a warm reddish-ochreous, and more resembling the larvæ of *lithurgyria* than those of *pallens*, which are always of a more or less cold greyish or putty colour, with very slight tints of ochreous. The larvæ of *favicolor* moreover are considerably larger than those of *pallens*, which are also much more attenuated and more slender.

DESCRIPTIONS OF LARVÆ TAKEN AT DIFFERENT PERIODS.

July 25th.—After second change. Head light reddish-brown, with a darker stripe on each lobe; whole of the upper surface pale sap-green with darker dorsal and spiracular stripes; under surface much paler; each segment with a few pale hairs.

August 15th.—Length about 14 mm. Head pale reddish-brown, reticulated with darker dots; general colour olive-brown; dorsal stripe darker with a narrow pale line in the centre, then a rather broad pale stripe widest on the middle segments, followed by a narrow whitish line bordered by a darker shade; next comes the spiracular stripe, which is somewhat broad and grey; the spiracles are black and rather conspicuous, those on the second and twelfth segments being much the largest; below the spiracles comes a yellowish-white stripe; under surface rather paler; there are a few short bristles, those on the head and posterior segments being the longest.

January 10th.—Length, 20 mm. Head pale reddish-brown with a darker streak, composed of minute dots, on each lobe; mouth dark brown; general colour ochreous-brown tinged with pink; dorsal line very narrow, light ochreous, and most conspicuous on second to fourth segments, and bordered by a dark clouding on each side, particularly on the central segments; then follow several narrow stripes or lines alternately pale pinkish-brown and dark pinkish-brown until the broad spiracular stripe is reached, this is light greyish-brown bordered above by a very narrow and slightly waved pale line; the black spiracles are seated on the lower edge of the spiracular stripe, except those on the third and fourth segments, which are much smaller and situated a little above the lower edge; the subspiracular line is rather conspicuous, and light pinkish-ochreous, slightly darker along its centre; under surface ochreous-brown; posterior pair of legs tipped with dark brown; two minute black dots (probably tubercles) placed diagonally on each segment, and a few others elsewhere; a few pale hairs or bristles on posterior segments and head, those on the lower part of the head just above the mouth the longest and pointing forward.

January 25th.—Head pale waincoat-brown, slightly shining, and irrorated with minute darker specks; a dark streak on each lobe, and a small dark blotch above the mouth; dorsal plate on the second segment of the same colour; general colour of upper surface a warm waincoat-brown; a narrow pale dorsal line most conspicuous on the anterior segments, and running through the dorsal plate on the second segment; this is bordered on each side by a darker clouding (in some larvæ this

clouding is much more intense than in others); then comes a rather broad paler stripe, then a series of alternate narrow dark and pale stripes or lines until the spiracular stripe is reached; this is rather broad and grey, and the black spiracles are seated on its lower edge; next comes a rather broad and conspicuous ochreous-white stripe, which, in some individuals, is tinged with pink; under surface paler than the upper and irrorated with some minute dots of a darker shade; legs brown; a few minute pale bristles, those on the head the longest; length, 20 mm. This description was taken from one of a batch of larvæ from eggs laid by a female of the red variety.

April 13th.—Full grown larva. Length, nearly 40 mm.; cylindrical, rather stout and plump; head pale, shining, yellowish-brown, thickly reticulated with darker dots, and with a crescent-shaped streak on each lobe; general colour a warm putty colour, or pinkish-brown, mottled and clouded with darker shades; dorsal line pale and whitish-brown, most conspicuous on the first three segments, and bordered on each side by a darker shade; a subdorsal line of the same colour, but rather brighter, and bordered above by a dark shade and below by a narrow dark line; a conspicuous brown or pinkish-brown stripe above the spiracles, and below them a rather conspicuous pinkish-yellow-stripe; spiracles small and black, with a pale centre and planted in a narrow pale ring; two minute dark dots on each segment between dorsal and subdorsal lines; spiracles on second segment much the largest; under parts paler. The whole surface of the larva is delicately reticulated with darker shadings, and they also vary considerably in their colour and depth of markings, but the general tone of colour is always more or less of a warm pinkish-brown. This description was taken from several larvæ of the typical batch.

April 18th.—Full grown larva. Length, 40 mm.; cylindrical, rather plump, and tapering somewhat towards each extremity; head porrected, rather flattened, greyish-ochreous, reticulated with darker atoms, and with a lunular-shaped stripe on each lobe; general colour pinkish-ochreous, reticulated with darker markings; dorsal line pale and narrow, and clouded on each side with dark brown reticulations; subdorsal line greyish-white, and bordered above by a darker shade; above the spiracles a broader stripe formed of the darker reticulations; the spiracles, which are small and greyish-white, are edged with black, which is again edged with a pale ring, and they are seated on the lower margin of the above broad stripe; the spiracle on the second segment is twice the size of the others, while those on the third and fourth segments are very small; below the spiracles there is a broad stripe of pale pinkish-ochreous; under surface pinkish-ochreous; a few minute bristles on the head and anal segments. The whole of the markings are caused, more or less, by the arrangement of the reticulations. This description was taken from one of a batch of larvæ from eggs laid by a dark female ab. *argillacea*, Tutt.

In July, 1903, I sent two batches of eggs of *L. favicolor*, laid by different females, to Mr. A. W. Bacot, and in July, 1904, I sent him a dead pupa, and he has very kindly furnished me with his notes on the ova, larva, and pupa; and also with notes on the ova and young larvæ of *L. pallens*, with permission to make use of them in this paper, and I think the best way of doing so will be to give his descriptions in his own words.

"Ova of *L. favicolor*, July 11th, 1903.— * * * The eggs were thrust beneath the flakes of wood that had been raised in the lower surface of the lids of the chip boxes in which they were laid, in small masses. They are practically shapeless, mere transparent skins surrounding the young larva, which can be distinctly seen moving its head and mandibles. I found that it was impossible to detach a single egg without rupturing it, so I could only judge of the size in comparison with a scale instead of actually measuring one. As near as I could judge they were between 4 and 5 mm. in diameter, and are probably nearly circular when laid; now, however, they are much wrinkled and shrunken, taking the impression of the surfaces between which they have been forced, but those portions that have not come in contact with the sides of the crevice, or another egg, are covered with a delicate but sharply cut cell pattern.

(To be continued).

LIST OF BRITISH *DOLICHOPODIDÆ*, WITH TABLES AND NOTES

BY G. H. VERRALL, F.E.S.

(Continued from page 83).

T. sp.?: Col. Yerbury caught three males and two females of a *Thrypticus* at Nairn early in July, 1904, which are certainly distinct from *T. bellus*, as they are very much larger, being in fact as large as *Medeterus truncarum*. Their size also prevents their being *T. smaragdinus* Gerst., while *T. divisus* Strobl. is now considered only a synonym of *T. bellus*; as however I have doubts as to the correctness of this synonymy, I do not venture at the present time to give a name to the Nairn species.

The genus *Thrypticus* may be easily distinguished from greenish *Medeterus* by the parallel cubital and discal veins.

19. *RHAPHIUM* Meig.

R. longicorne Fall.: I have taken this very distinct species in the New Forest not uncommonly, and also at Frant (in Sussex or Kent), while in Scotland it has occurred freely in Arran and at Rannoch.

20. *MACHÆRIUM* Hal.

M. maritimæ Hal.: a very widely distributed and common sea-coast species, distinguished by its brilliant pale green colour and by its long peculiarly shaped antennæ.

21. *PORPHYROPS* Meig.

Although we have at least fourteen well distinguished species of this genus in Britain, only one (*P. spinicoxa*) can be considered at all common.

- 1 (14) Middle coxæ with a strong black apical spine.
N.B.—This spine frequently splits up into two or three closely approximated bristles.
- 2 (3) Arista with a leaf-like dilation at tip; hind femora with one preapical spine...
1. *antennata* Carl.
- 3 (2) Arista practically normal.
- 4 (7) Face black; beard black or blackish; hind femora without any preapical spine.
- 5 (6) Outer genital lamellæ forked; hind tibiæ yellow, becoming black towards tip;
basal joint of front tarsi thin, as long as the other four together, and with a few
longer thin hairs at tip beneath2. *spinicoxa* Lw
- 6 (5) Outer genital lamellæ not forked; beard brown; hind tibiæ conspicuously
whitish from near base to middle, and with apical half dilated, channelled, and
blackish; basal joint of front tarsi thin, barely as long as next three together;
squamæ dark fringed3. *fascipes* Meig.
- 7 (4) Face and beard white; hind femora with one or more preapical spines.
- 8 (9) Last abdominal segment (the one before the hypopygium) purplish;
thorax brilliant green; hind femora with two or more preapical spines; basal
joint of front tarsi barely as long as next two together; outer genital lamellæ
long, not forked, hairy; front femora almost bare; large species...
4. *elegantula* Meig.
- 9 (8) Last abdominal segment concolorous with the others; hind femora with one
preapical spine.
- 10 (11) Third joint of antennæ longer than arista; thorax rather dull greenish; basal
joint of front tarsi not clubbed and not much longer than second; outer lamellæ
long, but not exceedingly long, and not bifid; small species...
5. *nemorum* Meig.
- 11 (10) Third joint of antennæ shorter than arista.
- 12 (13) Last joint of front tarsi with 4-5 remarkable long hairs; basal joint of front
tarsi hardly longer than second joint and not dilated at its tip; thorax dullish
green6. *rivalis* Lw.
- 13 (12) Last joint of front tarsi with no long hairs; lamellæ exceedingly long; basal
joint of front tarsi twice as long as second and clubbed at its tip; thorax dull
blackish-green with two black stripes; arista faintly dilated just before its tip...
7. *patula* Radd.
- 14 (1) Middle coxæ without a strong black apical spine, though a tuft of black
bristly hairs may occur there.
- 15 (16) Last two joints of middle tarsi dilated; narrow face and beard white; an-
terior femora and all coxæ with whitish pubescence; posterior coxæ with
distinct tufts of black bristly hairs; hind femora without any preapical spine;
hind tibiæ stout and black; basal joint of front tarsi longer than rest together
and clubbed at its tip; outer lamellæ very long, thin and forked...
8. *crassipes* Meig.
- 16 (15) Last joints of middle tarsi normal.
- 17 (20) Front femora with a black pectination beneath; outer lamellæ short and
broad, not forked.
- 18 (19) Face and beard black; front femora with a strong black pectination beneath on
the basal third consisting of about nine spines, then quite bare for a considerable
space, followed on the apical third (or more) with thin black ciliation; hind
femora with one small preapical spine; basal joint of front tarsi longer than
next three together, though the two basal joints are elongate and twisted...
9. *pectinata* Lw.
- 19 (18) Face and beard white; front femora with a continuous black pectination beneath

though with considerable white pubescence behind; hind femora sometimes with two preapical spines; basal joint of front tarsi barely longer than second...

10. *consobrina* Zett.

- 20 (17) Front femora without a black pectination beneath.
- 21 (24) Front coxæ and femora with black pubescence; outer lamellæ long.
- 22 (23) Beard whitish; outer lamellæ not forked; face narrow, black on all middle part; middle coxæ with stiff bristles almost like a small spine; hind femora with one small preapical spine; basal joint of front tarsi nearly as long as next three together, and bearing some short spines beneath at or before the middle; abdomen rather silvery.....11. *micans* Meig.
- 23 (22) Beard black; outer lamellæ conspicuously forked; face black; basal joint of front tarsi barely longer than second; abdomen not at all silvery; middle coxæ with a faint trace of a tuft of black bristles12. *nasuta* Fall.
- 24 (21) Front coxæ and femora with white pubescence; basal joint of front tarsi almost as long as rest together.
- 25 (26) Outer lamellæ moderately long and bent at a right angle; hind femora with only apical half black; posterior coxæ slightly black bristly...
13. *riparia* Meig.
- 26 (25) Outer lamellæ short and tufted; middle coxæ with a slight black fringe...
14. *penicillata* Lw.

If *P. gravipes* Wlk. is a distinct species, it may be distinguished from *antennata* by its simple arista; from *spinicoxa*, *fascipes*, *pectinata*, *micans* and *nasuta* by its white face; from *crassipes*, *consobrina*, *riparia* and *penicillata* by its long lamellæ; from *elegantula* by its dull colour and its single preapical spine; from *nemorum* and *rivalis* by its larger size; and consequently it is reduced to a comparison with *P. patula*, to which it must at any rate be closely allied through its "dark brassy, not shining" thorax on which are "two black stripes rather marked." I am however not inclined at present to pronounce them identical, because Haliday (in Walker) says nothing about a spur to the middle coxæ, and even if that allied it to *P. longilamellata* Kowarz, I can hardly believe but that he would have used a stronger term for the lamellæ than simply "*elongatis*," and I do not comprehend the hind "metatarsus with a short spine above near the middle;" the character of "hind legs black" I consider of very little comparative value in the males of this genus.

1. *P. antennata* Carl.: very rare. The British Museum possesses a recent male taken at Clifford's Castle, Herefordshire. *P. discigera* Stenh. is very similar, but has no spine on the middle coxæ.
2. *P. spinicoxa* Lw.: not at all uncommon on the leaves of shrubs at the sides of paths in woods in Sussex, Hants, and Kent. It is easily known by its black face, spined middle coxæ, and forked lamellæ.

3. *P. fascipes* Meig.: Walker's description of this species is unmistakable, and he says "Not rare (E. I.)." I have not met with it myself, but Dr. D. Sharp took a male in the New Forest about the beginning of September, 1901.
4. *P. elegantula* Meig.: very rare to me, but Col. Yerbury has taken it at Tarrington and Aviemore. It is a conspicuously handsome species.
5. *P. nemorum* Meig.: the smallest species of the genus and probably not uncommon, but I have only seen stray specimens from Somerset, Hampshire, Sussex, Middlesex, and Suffolk.
6. *P. rivalis* Lw.: Col. Yerbury took one male of this well marked species at Aviemore on June 4th, 1904. Its small size and peculiarly haired last joint of the front tarsi distinguish it at once.
7. *P. patula* Radd.: Col. Yerbury took a male at Aviemore on August 26th, 1900; the coxal spine upon close examination can be seen to be composed of three closely approximated bristles. The species is quite distinct from *P. longilamellata* Kowarz, which I possess, and which has no coxal spine, coxæ, especially the front pair, densely white haired, front femora white haired, hind femora black to the very base, face much narrower, and arista not perceptibly dilated. As I have mentioned above it is very probable that *P. gravipes* Wlk., may be a synonym of one of the above species, and neither of them ought to have been described as new without some reference to it.
8. *P. crassipes* Meig.: in various localities from Devonshire to Golspie, and sometimes fairly common. Becker's *P. putellitarsis* from Siberia is an obvious synonym, as all the minor distinctions pointed out by him do occur in *P. crassipes*, and therefore instead of adding to its distinction only tend to prove its identity. In all probability the outer lamellæ in his single specimen had the fork broken off, as is not uncommonly the case in these long delicate lamellæ, or it might be concealed in the dried up convolutions. It is only another of Becker's innumerable species founded on a single specimen; surely in such cases a mere note of an apparent difference should be sufficient without overloading our synonymy.
9. *P. pectinata* Lw.: I caught this species near Richmond in Surrey on July 19th, 1868.

10. *P. consobrina* Zett : I have caught or seen this species from at least Hampshire (New Forest), Lancashire (Silverdale), and Haddington (Aberlady). Walker says "common on the sea-coast (E. S. I.)." Why Becker failed to recognise this species from Zetterstedt's description I cannot tell, as Walker and Raddatz found no difficulty ; it is however obviously the same species as Lichtwardt described in 1896 as *P. discolor* Zett., which had previously been described from the female only ; whether Zetterstedt's *P. discolor* is distinct from his *P. consobrina* I cannot say.
11. *P. micans* Meig. : this species is difficult to place in a dichotomic table, because it has almost a spine on the middle coxæ, the face is so narrow that its colour is difficult to determine, and even when determined is black about the middle but whitish above and below, while the silveriness of the abdomen is easily overlooked ; it is however the only species of *Porphyrops* which has an approximation to an erect black bristle on the front of the hind coxæ. I have taken it near Boxhill in Surrey at I believe the shingly sides of the River Mole, and I have also taken it at Malling near Lewes and at Henfield in Sussex. I have also seen a male in the late Dr. P. B. Mason's collection under the name of *P. fulvipes*. Failing to recognise it in 1876 I unfortunately redescribed it as new, under the name of *P. simplex*.
12. *P. nasuta* Fall. : there was a male in the late Dr. P. B. Mason's collection which was probably taken at Deal, and with it was a fragment of a probable female.
13. *P. riparia* Meig. : better known as *P. prærosa* Lw., but described by me in this Magazine for February, 1876, as *P. tenuis*. I have taken it at Dovedale, Millersdale, Arran, Rannoch, and Tongue.
14. *P. penicillata* Lw. : a male in the late Dr. P. B. Mason's collection dated May 16th, 1868 ; probably taken at Deal.

(To be continued).

ON THE SCENTS OF THE MALES OF SOME COMMON ENGLISH BUTTERFLIES.

BY G. B. LONGSTAFF, M.D., F.E.S.

Following up the preliminary observations of 1903, mentioned by Dr. F. A. Dixey at a recent Meeting of the Entomological Society (Proceedings, 1904, p. lviii), I, during August, 1904, examined for

scent many individuals of several species of butterflies at Mortehoe, with the following results. With a view to avoid picking and choosing, the results of every observation were recorded, and for some days every butterfly netted was tested.

PIERIS NAPI, ♂ (46 examined).

The highly characteristic scent was often so obvious as to be readily perceived when the insect was fluttering in the net, but was *in every specimen* easily detected by rubbing the wings while holding the insect under the nostrils. The scent varied in intensity; it was very strong in a male netted when courting. The scent, which is pleasant, is usually (and with good reason) compared to that of lemon verbena, but it is by no means identical therewith.

PIERIS NAPI, ♀ (35 examined).

In no single instance was the lemon verbena scent detected. In four cases a fainter scent was observed during life, and in eleven cases such a scent was observed after the insect's thorax had been pinched in the common way of killing butterflies. The character of this scent was like that of the ♂ *P. rapæ*, but fainter. In nine cases the results were doubtful; in eighteen cases no scent was detected.

PIERIS RAPÆ, ♂ (40 examined).

Two appeared to be without scent; in nine the result was doubtful; but in twenty-nine a distinct scent was detected. This was not as strong as in the ♂ of the preceding species, so that it could not be made out when the insect was in the net. The scent was agreeable, of a somewhat "sticky" character; it has been compared to that of mignonette, but Mr. Selwyn Image's suggestion of sweetbriar is better, though the resemblance is not exact. Two consecutive observations were (1) on a male taken courting, in this the scent was exceptionally strong; and (2) on a male taken *in copula*, in which the scent was fainter than the average. It did not appear to make any difference whether the wings were rubbed during life or after death by pinching.

PIERIS RAPÆ, ♀ (39 examined).

In twenty-nine no scent was detected; in four after pinching a faint sweetbriar odour was detected; in five the results were doubtful; in one case only was a fairly strong scent observed, this apparent exception greatly puzzled me until the explanation appeared—a plant of mignonette at my feet!

PIERIS BRASSICÆ, ♂ (32 examined).

In fourteen a distinct though faint scent was detected; in twelve the results were doubtful; in six they were negative. The scent in this butterfly was so slight as to be difficult to detect; in character it was agreeable, sweet, flowery and "clean." It somewhat reminds one of the flower of rape, but a lady's suggestion of orris root is better.

PIERIS BRASSICÆ, ♀ (4 examined).

In two the results were negative, in two doubtful.

EPINEPHELE JANIRA, ♂ (34 examined).

In four there appeared to be a very slight, somewhat pungent odour, suggesting old cigar boxes; thirteen were doubtful; seventeen gave negative results.

EPINEPHELE JANIRA, ♀ (27 examined).

One appeared to have a scent as in the ♂; eight were doubtful; eighteen negative.

EPINEPHELE TITHONUS, ♂ (31 examined).

In twenty-three cases the results were negative; in eight cases doubtful. Even in the case of a ♂ taken courting no scent could be detected.

EPINEPHELE TITHONUS, ♀ (12 examined).

All these gave negative results.

PARARGE MEGÆRA, ♂ (16 examined).

In three I detected an odour somewhat like chocolate, but very faint; in six cases the results were doubtful; in seven negative. At Dr. Dixey's suggestion I examined several males in the house, stroking the "brand" with a camel's hair pencil, but did not obtain satisfactory results. Apparently my sense of smell is not acute enough.

PARARGE MEGÆRA, ♀ (4 examined).

In one instance the result was doubtful, but in the other three negative.

LYCÆNA ICARUS, ♂ (33 examined).

In twenty-five cases a distinct scent was detected, in one instance it was strong; in seven cases the result was doubtful; in one case only was it decidedly negative. Of a pair taken *in copulâ* the ♂ had a distinct scent, the ♀ none. The scent of this Blue is entirely unlike that of the Pierines, and may perhaps be compared to that of chocolate sweetmeats. Two ladies confirmed the reality of the scent.

LYCÆNA ICARUS, ♀ (14 examined).

Of these nine gave negative results; four were doubtful; but one had a distinct scent, and I can only suggest as a possible explanation that this specimen had paired.

HESPERIA SYLVANUS, ♂ (3 examined).

Stroking the "brand" gave negative results.

Speaking generally pinching the thorax did not seem to have any decided effect, save perhaps in bringing out the very faint odour of the ♀ *napi*, but in the case of a few of the Pierines it produced a foul odour, possibly fœcal.

There are many difficulties in these observations. Wind may interfere; confusion may arise from the scents of flowers or the leaves of plants. Then the scales rubbed off and snuffed up the nostrils are very irritating to the back of the throat (more especially it seems to me in the case of Satyrids), and this irritating quality increases the difficulty of appreciating slight odours. The phenomena are moreover fleeting, and do not admit of demonstration to others. Lastly, the human nose is at best a poor instrument; the sense of smell is soon clogged, while on the other hand scents may linger in the tortuous nasal cavities.

Some very interesting facts are brought out in Dr. Dixey's paper above referred to. My own observations on the scents of Indian butterflies should appear in the Transactions of the Entomological Society for the current year.

Highlands, Putney Heath :
January 12th, 1905.

ON *ORCHESTES SPARSUS*, FAHR., AS A BRITISH INSECT.

BY E. A. NEWBERRY.

In a short paper in this Magazine (Ent. Mo. Mag., xl, 133) on some errors of determination in the Power collection, I stated my opinion that the insect standing as *Orchestes sparsus*, Fahr., was only a small form of *O. ilicis*, Fab. In the January No. (Ent. Mo. Mag., xli, 20) Mr. Donisthorpe has called in question the accuracy of that view, and supported his opinion by stating that Messrs. C. O. and E. A. Waterhouse agree with him that the insect in question is *O. sparsus*. He then gives some vague generalities which he considers are sufficient to separate the two species.

In order to save the valuable space of this Magazine, I did not give the reasons on which I founded my opinion, but as my accuracy has been disputed I will now proceed to do so.

According to modern authors, the differences between the two species are structural and subgeneric. Scidlitz (Fauna Transsylvanica, 2nd ed., 1891, p. 718) distinguishes the two subgenera thus:—

Antennæ inserted in the middle of rostrum; front femora with a small thorn-like tooth in middle of under-side; hind femora angled or widened tooth-like in middle. subg. *Orchestes*, i. sp. (including *ilicis*, F., and some others).

Antennæ inserted behind the middle of rostrum, with very short scape.

subg. *Threcticus*, Th. (including *sparsus*, Fahr., and some others).

Bedel (Fn. Seine, vi, 124) does not make much use of subgenera in his work, but places the insects in separate groups and uses much the same characters, thus:—

Scape twice as long as the first joint of the funiculus, and inserted after the first 3rd of rostrum. *O. pilosus*, F., = *ilicis*, F. (and some others).

Scape scarcely longer than the first joint of the funiculus, and inserted before the first 3rd of rostrum. *O. sparsus*, Fahr. (and some others).

An examination of the so-called *O. sparsus* in the Power collection will at once show that it has a long slender scape, which is twice as long as the first joint of the funiculus, and that the position of the antennæ on the rostrum corresponds with that given for the subgenus *Orchestes*, i. sp. There can be no question about this, and it is quite

evident that Power's insect is not the *O. sparsus* of the two recent and trustworthy authors quoted. It may be said by others that both these authors are incorrect, and that we must go only to the original description.

Fahraeus's description (Schönherr, Gen. Curc., vii, 2, 375) is too long to reproduce here, but the following extracts from it are so remarkably appropriate to a type specimen of *O. sparsus* (which M. Bedel, with his usual kindness, at once sent me) that they are well worthy of attention. Referring to the elytra we find:—“*Interstitiis subseriatim punctulatis; nigra, hirsutie concolore, præsertim versus latera, inæqualiter adspersa, lituris niveo-pubescentibus, pone medium dorsi sub-bifasciatim, alibi variegatim congestis, macula quadrangulari, pone scutellum communi, fulvo-tomentosa. * * * Pedes validiusculi, nigri, griseo-pubescentes * * * tarsis pallide testaceis.*”

The intensely black colour of the type above referred to, on which the snow-white hair-like scales are so thinly spread as nowhere to hide the integument, together with the bright fulvo-tomentose spot behind the scutellum, are marked characters, which at first sight would prevent the insect from being mistaken for any other British species. Again, the intense black of the tibiæ and very pale tarsi present a remarkable contrast. These characters will not answer the Power *O. sparsus*. The name “*sparsus*” is a very appropriate one for the insect sent me by M. Bedel, which may be described as an *O. iota* in which the scutellary spot is fulvous and the elytra thinly sprinkled with thread-like white hairs. Its form is a little shorter and more square than that of *O. iota*.

I have not seen Mr. Donisthorpe's so-called *O. sparsus*, nor the continental example to which he refers, but as he states that it agrees with the Power specimen, it must be incorrectly determined.

To complete my case, it only remains to prove that the Power insect must be *O. ilicis*, Fab., or a new European species. The European representatives of the subgenus *Orchestes*, i. sp., amount to eight in all, but five of these have red integuments, those with black integuments being *fagi*, L., *quedenfeldti*, Gerh., and *ilicis*, Fab. *O. fagi* has no outstanding hairs, and *O. quedenfeldti* has, I believe, only been found in the east, and has the base of the elytra double as broad as the thorax. There only remains *O. ilicis*, F., a very variable insect, both as to size and markings. It has two named varieties, *nigripes*, Fowl., and *irroratus*, Kies.

12, Churchill Road, Dartmouth Park :

March 11th, 1905.

The late Mr. C. G. Barrett's "Lepidoptera of the British Islands."—I have much pleasure in announcing, on behalf of the late Mr. C. G. Barrett, that the publication of the remaining portion of the "*Lepidoptera of the British Islands*" left by him in MS. at the time of his decease in December last, will be superintended by Mr. Richard South, F.E.S. Sufficient material exists to carry the work to the completion of the *Tortricina*.—C. G. BARRETT, Jun., King's Lynn: April 12th, 1905.

Amara anthobia, Villa, at Chatham. —After reading in the April Number (*ante*, page 87), Mr. W. E. Sharp's note on the new British species of *Amara*, I at once carefully examined all my exponents of the two allied species *lucida*, Duft., and *familiaris*, Duft., and found that I had one specimen of the new species mixed with *lucida*. This specimen was taken at Chatham on the slopes of Darland Hill, on March 9th, 1896. When putting it away I noticed that it was bulkier in build than the specimens of *lucida* I had in my collection, which were taken at Deal; but at that time I had no Continental books to consult, and I merely considered it a large form of *lucida*. I may add that I sent the specimen to Mr. W. E. Sharp, and he has compared it with Continental types, and there is no doubt about its correct determination as *anthobia*; the two prescutellary pores are very distinct.—T. HUDSON BEARE, 10, Regent Terrace, Edinburgh: April 6th, 1905.

Lepidoptera in Hertfordshire.—Seven new species have recently been added to the County List of *Lepidoptera* kept by the Hertfordshire Natural History Society, all except one having been taken in 1904. They are (1) *Xylina semibrunnea*, taken at Baldock by Mr. A. H. Foster; (2) *Melanippe galiata*, captured at St. Albans by Miss Alice Dickinson; (3) *Anticlea cucullata (sinuata)*, reported both from St. Albans by Miss Dickinson, and from Hexton by Mr. Foster; (4) *Cidaria literata*, larva beaten at Tring by Mr. A. T. Goodson; (5) *Scoparia angustea*, taken at Watford by Mr. V. P. Kitchin; (6) *Acipitilia galactodactyla*, captured at St. Albans by Miss Dickinson; and (7) *Tinea granella*, caught by me at St. Albans. The number of species on the Record Book now stands at 1165.—A. E. GIBBS, Kitchener's Meads, St. Albans: April 14th, 1905.

Captures of Hymenoptera Aculeata during 1904.—A few days devoted to *Hymenoptera* last season were not prolific of many species, but the following list of captures may be of some interest.

A short visit to Little Eaton, near Derby, on May 17th, a cold, cloudy day, produced *Leptothorax acervorum*, *Andrena cineraria*, *A. lapponica*, and *A. similis*, and several common species.

The best capture of the year was a single example of *Prosopis genalis*, taken near Basingstoke on June 5th, and on the 12th *Andrena proxima* was met with near Compton. A visit to Wellington College on August Bank Holiday was quite a failure, a single example of *Harpactus tumidus* being the best capture. *Colletes succincta*, *Mimesa equestris*, *Ammophila sabulosa*, *Cerceris labiata*, and *Pompilus unguicularis* were also met with. *Leptothorax acervorum* also turned up, a few of each sex being taken.

Cilissa hæmorrhoidalis, *Chelostoma campanularum*, and *Andrena coitana* were met with at Lynnonton, Hants, on August 7th, in *Campanula* flowers, and *Andrena cetii* on *Knautia arvensis*.

The only other species worth mentioning included *Nysson spinosus*, *Andrena fulcata*, *A. angustior*, *A. dorsata*, and *Nomada flavoguttata* from Woodhay. *Epeolus rufipes* and *Nysson dimidiatus* from Brimpton. A very fine *Andrena fulva*, ♂, was picked up in the road near Welford Park on May 1st.

I am very much indebted to the Rev. F. D. Morice for his kindness in naming many of my captures.—P. H. HARWOOD, 2, Dorchester Villas, Gloucester Road, Newbury: *March 29th*, 1905.

Larvæ of the Stratiomyidæ: an appeal.—I shall be very much obliged to any one who will during the coming season supply me with larvæ of the *Stratiomyidæ*. I especially want the aquatic forms, particularly *S. chamæleon* which was studied by Swammerdam so many years ago. My daughter and I have been interested in the larvæ of this family of flies during the last twelve months, and have already a considerable series of drawings of the larvæ and their anatomy. In order to make the points that are emerging clear, it is desirable to have a considerable variety of forms for comparison, as we find that a good deal of what has been written and published on the subject is not so exact as it should be. I shall also be glad of any terrestrial forms of these larvæ, especially of those that live in wood and dung; and shall be very glad if any one who may send me these larvæ will give me any hints as to their names. This is at present a point very difficult to ascertain, as will be readily believed by those who have taken up the study of Dipterous larvæ. All the larvæ we have yet had to do with of this family live a very long time, some we think for years, so that it is not very easy to get their names by rearing the flies.—D. SHARP, University Museum of Zoology, Cambridge: *April 12th*, 1905.

How insects fade.—In the winter of 1894-5 I put aside some insects in a glass case for the purpose of proving for myself the extent to which the action of light in an ordinary town sitting-room would affect their pigments. The case has hung in the same position for ten years, at right angles to the white-curtained window, on a level with, and about ten feet away from it. Last autumn, upon examining the subjects, I was surprised to note how small a percentage of them had in the least degree faded; in the *Coleoptera*, whose colours are to a large extent "structural," and not "pigmental," this was to be expected, but many of the *Lepidoptera*, some even of the *Rhopalocera*, were still quite normal in coloration, whereas the *Diptera* and *Neuroptera* were in each case much affected. The following is a full list of the insects treated:—

LEPIDOPTERA.—Unaffected: *A. adippe*, *C. vaccinii*, *S. hyperanthus*, *N. xanthographa*, *A. rufina*, *X. ferruginea*, *A. pistacina*, *V. io*, *C. edusa*, *S. tithonus*, *H. lincola*, *L. alexis*, *S. semele*, *A. betularia*, *A. incanaria*, *C. pusaria*, *H. elutata*, *B. hirtaria*, *U. sambucaria*, *F. piniaria*, ♂; *V. polychloros*, hardly in the least faded; *T. pronuba*, hind-wings much faded; *C. carya*, very faded throughout; *S. megæra* and *M. persicaria*, slightly; *V. maculata*, somewhat; *A. luteata*, one side, which was more exposed, much more faded than the other; *P. meticulosa*, hardly faded; *N. c-nigrum*, distinetly; *H. protea*, green quite gone; *A. aprilina*, green still distinct though very pale; *A. euphrosyne*, only some of the specimens were slightly faded.

COLEOPTERA.—Unaffected: *Carabus granulatus* and *catenulatus*, *Dromius meridionalis*, *Lema cyanella*, *Nebria brevicollis*, *Calathus melanocephalus*, *Dromius 4-notatus*, *Donacia sericea*, *Grammoptera ruficornis*, *Anchomenus parumpunctatus* and *dorsalis*, *Cicindela campestris*, *Crepidodera helxines* and *aurata*, *Rhynchites conicus*, *Hydrobius fuscipes*, *Chrysomela hœmoptera* and *staphylea*, *Agelastica halensis*, *Ctenopus*, *Micraspis 12-punctata*, *Bembidium littorale* and *lucidosum*, *Demetrias atricapillus*, *Nitidula bipustulata*, *Coccinella rufa*, *Loricera*, *Haliphus ruficollis*, *Tachyporus* and *Cholera chrysomeloides*, *Erirrhinus validirostris*; slightly faded: *Apion miniatum*, *Pterostichus strenuus*, *Serica brunnea*, *Phyllopertha horticola*, elytra, *Dromius 4-maculatus*, elytral markings, *Leptura livida*, elytra; distinctly faded: *Anchomenus albipes*, one example only, *Sphæroderma cardui*, *Dromius linearis*, *Coccinella variabilis*; very distinctly: *Pyrochroa serraticornis* and *Coccinella 22-punctata*.

DIPTERA:—*Hæmatopota pluvialis* (slightly), *Chloromyia formosa* and *Tolucella pellucens* (not at all), *Helophilus pendulus* (very distinctly), *Bombylius discolor* (distinctly).

NEUROPTERA:—*Panorpa communis* and *germanica* (wing-markings slightly), *Halesus radiatus* (distinctly).

HEMIPTERA:—*Nabis ferus* (very slightly).

ORTHOPTERA:—*Stenobothrus elegans* (normal), *S. viridulus* (very distinctly).

HYMENOPTERA:—*Athalia roseæ*, body distinctly; *Hylotoma ustulata*, normal.

—CLAUDE MORLEY, The Hill House, Monks Soham, Suffolk: February, 1905.

Obituary.

Alexander Fry was born on September 10th, 1821, at Peneraig, Herefordshire. In 1838 he went to Rio de Janeiro, entering his father's mercantile business house there. In 1843 he became a partner, and came to England for a short time, returning to Rio after his marriage. After 1854 he resided in London (visiting Rio occasionally), and became a Member of the Entomological Society in 1885. He was an enthusiastic collector of *Coleoptera*, and to those he collected himself he added greatly by purchase, including Parry's collection of *Longicornia*, great numbers collected by Wallace, Doherty, and others, and the very fine series collected by Whitehead at Kinabalu, including all the types described by H. W. Bates. He did not confine himself to any particular Family, but he seemed to be particularly attached to the *Longicornia* and Weevils. He never did any descriptive work himself, but many parts of his collection had been examined and named by Monographers, and are on this account of considerable value. He was always most ready to show his collection to any one, and many entomologists will long remember their visits to his beautiful house at Norwood. At the time of his death, which occurred on February 26th, 1905, he had been a widower for many years. He had no family. He bequeathed his whole collection, comprising some 200,000 specimens, to the Trustees of the British Museum.

Henri Louis Frederic de Saussure.—Entomology has suffered a severe loss by the death of this veteran Orthopterist at the age of seventy-five; the infirmities of

poor health, together with advancing age and failing eyesight, had in recent years somewhat limited his output of scientific work, but until a few years ago he was one of our most prolific writers upon the *Orthoptera*. In the sixties and early seventies he produced a series of memorable and voluminous works, chiefly dealing with American forms, more particularly with Mexican *Dictyoptera*. His "*Blattides Americaines*" (1864) and "*Mantides Americaines*" (1867) marked the beginning of the modern epoch in the study of *Orthoptera*. The latter just preceded the appearance of the first of Brunner von Wattenwyl's series of Monographs, and unfortunately a great part of the latter's work on Cockroaches coincided with de Saussure's treatise. Then came the "*Melanges Orthopterologiques*;" parts I to IV deal chiefly with American *Dictyoptera*, but fascicules V and VI, which form together a very stout quarto volume, are an exhaustive Monograph of the Crickets which has not yet been rivalled, and must remain for a long time the standard treatise on this sub-Order. In the eighties we have the "*Prodromus Edipodiorum*" (1888) and the "*Additamenta*" thereto which shortly followed, which form the standard and only work upon this Family. Soon there came the Monograph of the *Pamphagidæ*, together with a study of *Hemimerus*, for which isolated form the author established a new order of insects with the name *Diploglossata*, but in this case the learned and experienced entomologist was misled by a faulty preparation. In later years came a series of small brochures dealing with revisions of various Blattid families, such as the *Panesthidæ*, *Epilampridæ*, *Perisphæridæ*, *Heterogamiidæ*, &c. Then we find him dealing with the enormous material collected for the "*Biologia Centrali-Americana*," which work alone would entitle the author to a very high position in Entomology; in this work he was assisted by the collaboration of MM. Pictet and Zehnter. In a similar way he produced an account of the *Dictyoptera* of Madagascar, published by Grandidier, which was supplemented by a faunistic work on the collections made by Voeltzkow in Madagascar and the neighbouring Archipelago. As recently as 1903 de Saussure published a small but important work on the *Eumastacidæ*.

His attention was, however, not confined to the *Orthoptera*, for his work upon American Wasps is very highly esteemed by Hymenopterists, and his Monographs on the social and solitary Wasps and on the *Scoliidæ* (the latter in collaboration with Siehel) still hold the field as standard works on these groups. He has described a large number of species from Madagascar, as well as from the results of Fedtschenko's travels in Turkestan (in which he dealt also with the *Orthoptera*) and the voyage of the Novara.

In recent years he confined his attention more particularly to the *Orthoptera*, in connection with which his name will be chiefly remembered, but twenty years ago he was in the front rank of Hymenopterists, and a great deal of his work upon this group was highly original and very valuable.—M. BURR.

Reviews.

THE HEMIPTERA OF SUFFOLK: by CLAUDE MORLEY, F.E.S. Plymouth: James H. Keys, Pp. i—ix, and 1—34.

The above is an excellent list of the Suffolk *Hemiptera-Heteroptera*, and

Homoptera (*Cicadina* and *Psyllina*), and will, we hope, be a stimulus to others to enlarge it; even now it compares favourably in the *Heteroptera* with Norfolk, showing only 15 less than that county, which has had the special attention of two first rate Hemipterists, Messrs. J. Edwards and H. J. Thouless; in the *Homoptera* the respective numbers do not compare so well, but then this section was Mr. Edwards' speciality, and on this account probably no county has been so well worked as Norfolk for the species contained in it. A reviewer is expected to find a few faults, and in this case the object of commencing all specific names with capital letters seems to be doubtful, their use is certainly unusual, also the introduction of *Phytocoris distinctus* as a separate species, which is now universally considered as a variety of *populi*, is regrettable, and also in the localities given for *Anthocoris sarothamni*, "a dead fir hedge," a species attached to the common "Broom;" *Psallus obscurellus*, "on an aspen," which is a regular fir tree species. *Asciodema obsoletum*, "on *Hypericum*, and "on hazel," a broom and furze species, are so unusual that a warning note should have been given to show that these are not the natural habitats of the species. These small faults however can be easily rectified in a subsequent edition, which we hope may soon be wanted.—E. S.

A MONOGRAPH OF THE ANOPHELES MOSQUITOES OF INDIA. By S. P. JAMES, M.B., I.M.S., and W. GLEN LISTON, M.D., I.M.S. Calcutta: Thacker, Spink and Co. 1905.

This book has been written with the object of enabling medical men in India to easily recognise any of the "malarial" gnats, and it has been written most admirably with that object. About twenty-three species have been described, and fifteen exquisite plates have been given, which will undoubtedly enable anybody to name with comparative certainty any of the species. The writers do not profess to be ultra-scientific entomologists, and thereby show their common sense and probably better true science than the genus- and species-makers who have preceded them. At any rate there remains the fact that their species will be easily and accurately recognised, while the writings of Theobald will prove stumbling blocks for generations. They have wisely ignored the insufficiently distinguished genera of Theobald, which have commonly been founded on minute and practically indistinguishable characters, and which are consequently valueless to the "field" naturalist. A little more accuracy might be desirable in some of their terms, as such words as "two white hind tarsi" do not convey any definite meaning, but criticism of such a kind is unnecessary. The table of species is well worked out in a simple and intelligible method. Very valuable figures of the larvæ of most species are given. Only one new species is described, for which the rather undesirable name of *A. culiciformis* is given, as that specific name has already been used in the *Culicidæ* (*Corethra*) and in the *Chironomidæ* (*Tanytus*), while the name *culicifacies* occurs in the Indian species of *Anopheles* itself.

Altogether we cannot speak too highly of this work, as it is a most valuable contribution to science and to medical knowledge.—G. II. V.

Societies.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY :
January 26th, 1905.—MR. ALFRED SICH, F.E.S., Vice-President in the Chair.

ANNUAL GENERAL MEETING.

The first part of the Meeting was devoted to the business of receiving the Treasurer's Balance Sheet and Statement, the reading of the Council's Report for the past year, the announcement of the Officers and Council elected for the ensuing year, and the reading of the retiring President's Address. A satisfactory financial condition was announced by the Treasurer, Mr. T. W. Hall, and the Council's Report showed that the work of the Society had been generally very successful throughout the year, with an average attendance at the 25 meetings of over 30.

List of the elected Officers and Council : *President*, HUGH MAIN, B.Sc., F.E.S. ; *Vice-Presidents* : A. Sich, F.E.S., and E. Step, F.L.S. ; *Treasurer* : T. W. Hall, F.E.S. ; *Librarian* : A. W. Dodds ; *Curator* : W. West (Greenwich) ; *Hon. Secretaries* : Stanley Edwards, F.L.S., F.E.S., and Hy. J. Turner, F.E.S. ; *Council* : R. Adkin, F.E.S., F. Noad Clark, F. B. Carr, A. Harrison, F.L.S., F.Z.S., F.C.S., W. J. Kaye, F.E.S., H. A. Sauzé, and W. West (Streatham).

ORDINARY MEETING.

MR. HUGH MAIN, B.Sc., President, in the Chair.

Dr. Chapman exhibited a living specimen of *Doritis apollinus* bred from a pupa sent from Syria. Mr. Main reported having seen *Hybernia rupicaprariva*, *Phigalia pedaria*, *Cheimatobia brumata*, *H. marginaria*, and *P. monodactylus* in Epping Forest in some numbers, on January 22nd. Mr. Turner read a few notes on the Entomology of Assiniboia, Canada, read by Mr. A. J. Croker.

February 9th, 1905.—The President in the Chair.

A special exhibition of *Hybernia defoliaria* ♂s had been arranged, and series were shown by Messrs. Rayward, Pratt, Crow, Browne, Hickman, Harrison, Main, Goulton, and Tonge. The variation ranged from uniformly dark forms to uniformly light ones, with considerable variation in widths and colour of the transverse markings. It was noted that the ♂s migrated in large numbers, but no well ascertained facts were known as to the distribution of the ♀s. Mr. Rayward, living females of *H. rupicaprariva* from Wallington. Mr. Crow, on behalf of Mr. Hickman, the whole of the imagines and varieties bred from the brood of *Arctia caja*, referred to at the Exhibition of Varieties in November, 1904. Mr. Kaye, two forms of *Heliconius pasithoë* from the Demerara River. Mr. Adkin, a series of *Cupido minima* taken last year at Eastbourne, and showing an unusual amount of blue in the ♂s. Mr. South, a long series of very varied specimens of *Gelechia populælla* taken on birch trunks at Oxshott on August 20th, 1904. He also showed a hybrid between *Anthrocera (Zygæna) filipendulæ* ♀, and *A. trifolii* ♂, and read notes on the exhibit. Mr. Edwards, two ♂s of *Papilio blumei* from Celebes, Mr. Priske, an example of *Calosoma sycophanta* recently picked up in Kew Gardens. Dr. Chapman, a long series of bred *Hastula (Dichelia) hyperana* and its dark var. *marginata*, a Tortrix from the South of France, together with details of its life-history, including larvæ in each instar, pupæ cases, stems of *Asphodel* showing the ravages, photographs of ova, microscopical slides showing tubercles, &c., and read a paper on the exhibits.—HY. J. TURNER, *Hon. Secretary*.

ENTOMOLOGICAL SOCIETY OF LONDON: *March 15th*, 1905.—MR. F. MERRIFIELD, President, in the Chair.

Señor Don Ignacio Bolívar, of Paseo de Recoletos, Bajo, 20, and Calle Jorge Juan, 17, Madrid, was elected an Honorary Fellow of the Society, in the place of Professor F. M. Brauer, deceased.

Mr. Frank P. Dodd, of Kuramba, *civilis* Cairns, Queensland; Mr. Cecil Floer-sheim, of 16, Kensington Court Mansions, S.W.; Mr. Joseph Lane Hancock, of 3757, Indiana Avenue, Chicago; and Mr. Herbert C. Robinson, Curator of the State Museum, Kuala Lumpur, Selangor; were elected Fellows of the Society.

Mr. C. O. Waterhouse announced that the late Mr. Alexander Fry, a Fellow of the Society, had bequeathed his large and important collections of *Coleoptera* to the British Museum.

Dr. F. A. Dixey exhibited some butterflies from Natal which had been presented by Mr. G. A. K. Marshall, F.E.S., to the Hope Department at Oxford, illustrating certain experiments conducted with a view to ascertain whether the assumption of the wet or dry season form of various African butterflies could be controlled by exposure in the pupal state to artificial conditions of temperature and moisture. Mr. W. E. Sharp, a specimen of the North American Longicorn, *Neoclytus erythrocephalus*. He said the species had been discovered in a sound ash tree seven inches from the bark, grown in the neighbourhood of St. Helens, Lancashire. Some posts of American ash in the vicinity suggested the origin of the progenitors of the colony; but it was not known how long they had been erected. He also showed examples of *Amara anthobia*, Villa, with a series of *A. familiaris*, Duf., and *A. lucida*, Duft., for comparison. They had been given him by the Rev. G. A. Crawshaw of Leighton Buzzard, where they occurred not infrequently at the roots of grass in sandy places. Mr. M. Burr, a number of mutilated *Stenobothrus* from the Picos de Europa, Spain. Of the grasshoppers occurring on this spot, almost every specimen seen had the wings and elytra more or less mutilated, sometimes actually torn to shreds, entirely altering their appearance. A notable exception was *St. bicolor*, of which no single specimen was found mutilated. This species also frequently indulged in flight, which the others were unable to do; and he suggested that its immunity might be due to the vitality which has enabled it to become the most abundant and widespread grasshopper in Europe. Mr. F. N. Pierce, drawings of the genitalia of Noctuid moths, and also with the lantern a number of slides showing the respective peculiarities of many members of the group. Among other things he drew attention to the fact that in the case of the *Teniocampæ* the genitalia were widely dissimilar, while his investigations had led him to conclude that *A. ashworthii*, at present ranked as an *Agrotis*, should more properly be included in the *Noctua* group.

Wednesday, April 5th, 1905.—The President in the Chair.

Mr. H. St. J. Donisthorpe exhibited specimens of a melanic *Grammoptera*, discovered by Mr. C. J. C. Pool at Enfield, which appeared to be quite distinct from any member of the genus taken in Britain. Mr. M. Jacoby, a specimen of *Megalopus melipona*, Bates, an insect which so much resembles a bee that Bates had said they were indistinguishable in nature. Mr. A. Bacot, on behalf of Dr. Culpin, specimens of *Papilio macleayanus* and *Hypocista metirius* captured in

Queensland, illustrating the use of "directive" markings in the Rhopalocera in influencing their enemies to attack non-vital parts. Mr. G. J. Arrow, an example of *Ceratopterus stahli*, Westw., a beetle from Australia possessing notable powers of crepitation. Mr. A. H. Jones and Mr. H. Rowland-Brown showed a series of *Erebia alecto (glacialis)*, var. *nicholli*, Oberthl., taken by them at about 8000 ft. at Campiglio, South Tyrol, with specimens of *Dasydia tenebraria*, var. *wockearia*, caught in the company of the *Erebias* in the same localities. Mr. Jones also exhibited examples of *Erebia melas* from the Parnassus Mountains, Greece, for comparison, and fine forms of butterflies found at Mendel, near Botzen. Mr. W. J. Kaye, a series of bred *Morpho adonis* from British Guiana, with the very rare dimorphic black-and-white female. Dr. F. A. Dixey, the social web and pupal shells of *Eucheira socialis*, Westw., together with specimens of the perfect insect, being the actual nest from Mexico described and figured by Westwood in the Transactions for 1836. The President read a note on experiments conducted by him to ascertain the vitality of pupæ subjected to submersion. Mr. H. A. Byatt, read a paper on "*Pseudacreea paggei* and *Limnas chrysippus*; the Numerical Proportion of Mimic to Model." Mr. G. Bethune-Baker contributed "A Monograph of the Genus *Ogyris*."—H. ROWLAND BROWN, *Hon. Secretary*.

ALGERIAN MICROLEPIDOPTERA.

BY THE RT. HON. LORD WALSINGHAM, M.A., LL.D., F.R.S., &c.

(Continued from page 41).

2848 : 1.—*APROAEREMA DEVERRAE*, *sp. n.*

Antennae black, annulate with pale ochreous. *Palpi* whitish ochreous, the terminal joint with a black line along it and a black ring before its apex. *Head* whitish ochreous. *Thorax* yellowish ochreous. *Forewings* at the base yellow-ochreous, a narrow line of black scales along the costa, another on the upper edge of the cell, below which the cell itself is pale whitish ochreous; from a little beyond the remainder of the wing-surface is thickly suffused and speckled with black, the black scales being concentrated in an elongated spot on the middle of the wing, followed by a smaller one at the end of the cell, with some indication of a third in the fold below the first; the ground-colour underlying the black speckling is pale whitish ochreous, as on the upper half of the cell from the base, and is fairly conspicuous on the small patch at the commencement of the costal cilia and in another opposite to it on the dorsum; a line of black scales runs through the whitish ochreous cilia which are also dusted with black at their base. *Exp. al.*, 13 mm. *Hindwings* bluish grey; cilia pale brownish grey. *Abdomen* shining steely grey. *Legs* whitish ochreous, the tarsi shaded with black.

Type, ♂ (88773); ♀ (97119). Mus. Wlsm.

Hab.: ALGERIA—El-Kantara—5.VII.1903; Hammam-es-Salahin, Larva *Deverra scoparia*, 22.I. excl. 23.IV.—10.VIII.1904. Twenty-two specimens.

Two larvae found feeding in stems of *Deverra (Pituranthos) scoparia* on May 8th, the type emerged on July 5th, 1903.



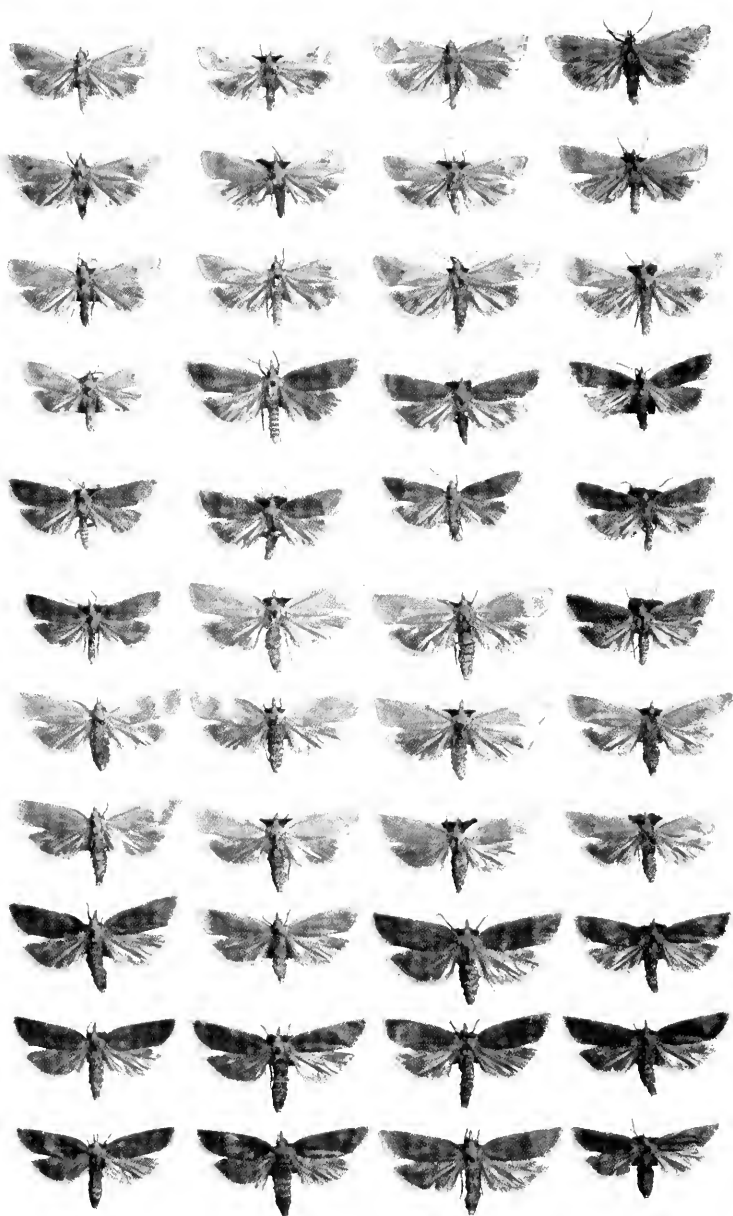
1

4

2

3

ASPHODELS WITH HASTULA HYERANA.



HASTULA HYERANA, Mill.

The narrow stems of this plant are much affected by galls, although these occur on a solitary plant here and there and are by no means so far as I can see common. The galls are not due to the action of any Lepidopterous insect but the larvae of this species bores through them and mine the stems above and below. I first found an empty pupa-case in one of the galls, but it was not without at least an hour's searching that a living larva was at length discovered in the stems, and a most exhaustive search produced only two specimens, one of which I was fortunate enough to rear. This year I have freely bred it from stems of *Deverra scoparia* (collected at Hammam-es-Salahin) on which there were no galls. The larvae are easily found, owing to the bleached appearance of the broken stems which are closed with a slight web.

336 : 1.—APONOEAE, *gn. n.*

(ἀπόνοια = despair).

Type, ♂ ♀, *Aponoea obtusipalpis*, Wlsm.

Antennae ($\frac{3}{4}$) shortly biciliate, the basal joint without a pecten. *Ocelli* absent. *Haustellum* moderate, sealed. *Maxillary Palpi* short. *Labial Palpi* projecting the length of the head and thorax in front, laterally compressed, the median joint densely, but not very roughly, clothed above and beneath; the terminal joint erect, very short, projecting less than half the width of the clothing on the median joint. *Head* and *Thorax* smooth. *Forewings* elongate, lanceolate, with obtusely rounded apex: *Neuration* 12 veins; 7 and 8 stalked, connate with 9, 7 to costa; 2 and 3 almost connate; 4 and 5 approximated. *Hindwings* broader than the forewings, with obtuse and scarcely depressed apex, termen and dorsum evenly rounded, not sinuate; cilia ($\frac{1}{2}$): *Neuration* 8 veins; 6 and 7 stalked; 3 and 4 connate; 5 approximated to 4; discoidal weak, becoming obsolete above media. *Abdomen* moderate. *Legs*: hind tibiae hairy.

Allied to *Holcophora*, Stgr., and *Apiletria*, Ld., but differing in the structure of the palpi.

Staudinger and Rebel (Cat. II, 164) erroneously refer *Apiletria* to the *Oecophorinae*, omitting to notice that in the hindwings veins 6 and 7 are stalked.

2980 : 1.—APONOEAE OBTUSIPALPIS, Wlsm.

Antennae cinereous, spotted with black above. *Palpi* cinereous, with black dusting, especially on the outer side. *Head* and *Thorax* cinereous, minutely dusted with blackish. *Forewings* cinereous, profusely dusted with black scales, which are somewhat concentrated across the cell at one-third from the base, and indicate a slight lunate spot at the end of the cell and a series of obscure spots along the termen at the base of the pale cinereous cilia, which are also sprinkled along their middle with blackish atoms. *Exp. al.*, 16-21 mm. *Hindwings* pale rosy grey; cilia pale brownish grey. *Abdomen* ochreous. *Legs* whitish, sprinkled externally with black atoms and with four narrow black tarsal annulations.

Type, ♀ (96644); ♂ (96648). Mus. Wlsm.

Hab.: ALGERIA — Biskra, 7-21.III.1903; Hammam-es-Salahin, 12-16.V.1903, 3-19.IV.1904.

I took eighteen specimens of this curious insect at Biskra in the month of March, and at Hammam es-Salahin in May; at the latter place it was undoubtedly attached to *Limoniastrum guyonianum*, for I smoked and beat it from this and no other plant. A free-feeding larva precisely resembling in colour the leaf of *Limoniastrum*, and somewhat tapering towards the extremities, would I think have produced this insect, had I not unfortunately failed to rear the three or four specimens obtained. Both larva and moth are undoubtedly scarce, I only met with three specimens this year.

HYPONOMEUTIDAE.

354 : 1 (= 304).—ALLOCLITA, Stgr.

3074 : 1.—ALLOCLITA FRANCOEURIAE, *sp. n.*

Antennae simple (two strong bristles indicate a fugitive pecten at their base); white, delicately barred with black above. *Palpi* erect, median joint smooth, terminal of equal length, moderately stout and acuminate; white, the median joint speckled before its apex, the terminal broadly suffused with black. *Head* pale brownish red; face ochreous. *Thorax* pale brownish red, mixed with some ochreous. *Forewings* white, profusely dusted with greyish fuscous; a short ochreous basal patch darkening to brownish red at its outer edge, is narrower on the costa than on the dorsum, with a projecting angle on the fold; about half the wing-length is a dark ferruginous brown patch, its base resting on the fold, from which it is projected outward toward the end of the cell, where there is a round pale reddish ochreous spot; a faint reddish ochreous tinge crosses the wing at one-third from the base, and the termen is more distinctly pale reddish ochreous throughout, the fuscous speckling reappearing strongly at the apex and along the base of the hoary whitish cilia, which are mixed with pale greyish fuscous. *Exp. al.*, 15—17 mm. *Hindwings* shining, yellowish white; cilia pale straw yellow. *Abdomen* ochreous. *Legs* alternately banded with greyish fuscous and white.

Type, ♂ (96473); ♀ (96451). Mus. Wlsm.

Hab.: ALGERIA—Biskra, 23.II.1895 (*Eaton*), 1-23.III.1903 (*Wlsm.*); Hammam-es-Salahin, 12.III—7.IV.1904. Larva *Francoeuria crispa*, 19.IV. excl. 18.VII.1903. Twenty-eight specimens.

Several specimens taken at light at Biskra, March, 1903, and a single ♀ subsequently bred in July from a larva found in April burrowing under the woolly bark of the stems of *Francoeuria crispa*; after eating out the inside of the leaves it makes sand-galleries attached to the crown of the root. This species varies in the intensity of its colouring, in some which are darker than the type the greyish fuscous speckling is so dense as to change the ochreous

appearance of the thorax and basal patch, and nearly to obliterate the white ground-colour, which usually becomes accentuated immediately beyond the basal patch and across the wing before the apex, especially on the costa; in such suffused varieties the ochreous tinge is more diffused, especially about the end of the cell.

I am not acquainted with *A. recisella*, Stgr., and am partly guided in identifying the genus by Herrich-Schäffer's figure of that species, which somewhat resembles *francoeuriae*. The only point on which there may be some doubt is as to the pecten at the base of the antennae, in some specimens this is not indicated, while in others there are two or more strong bristle-like scales, the remainder of the pecten having probably been rubbed off. Staudinger did not describe the neurulation of *Alloclita recisella*, and Herrich-Schäffer wrote, apparently with some uncertainty, "Die Hinterflügel scheinen mir 8 Rippen zu haben, 3+4, 5+6; 8 nur bis über die Mitte des Vorderrandes. An den Vorderflügeln scheinen mir die Rippen gesondert."

The neurulation of *A. ? francoeuriae* is: *Forewings* 12 veins, 7 and 8 stalked, 7 to costa; *Hindwings* 8 veins, all separate, 6 and 7 nearly parallel, 5 approximated to 4; discoidal subobsolete between 5 and 6. Staudinger placed *Alloclita* between *Oecophora* and *Butalis*, while Herrich-Schäffer thought it might perhaps be allied to *Endrosis*.

In Staudinger and Wocke's Catalog the genus occurs between *Oecophora* and *Oegoconia*, while Dr. Rebel inserts it in the *Gelechiadae* between *Gelechia* and *Schistophila*. In the absence of evidence to the contrary the neurulation of *recisella* and *francoeuriae* are assumed to be identical, but of course in locating the position of *Alloclita* I am compelled to rely upon the structure of the latter. I regard it as a *Hyponomeutid* of generalised type closely allied to the form from which the groups of *Scythris* and *Blastobasis* are specialised derivatives.

3074 : 2 (= 2769).—ALLOCLITA RECISELLA, Stgr.

Alloclita recisella, Stgr., Stett. Ent. Ztg., XX, 247-8, No. 104 (1859) ⁽¹⁾; H.-S., N. Schm., 18, No. 80 (+ "SO"), fig. 106 (1860) ⁽²⁾; Stn., Tin. S.-Eur., 154, 259 (1869) ⁽³⁾; Stgr.-Wk., Cat. Lp. Eur., 308, No. 2297 (1871) ⁽⁴⁾; Stgr.-Rbl., Cat. Lp. Pal., II, 151, No. 2769 (1901) ⁽⁵⁾.

Hab.: ANDALUSIA ⁽¹⁻⁵⁾.—Chiclana, VI ⁽¹⁻³⁾.

OECOPHORIDAE.

355.—PLEUROTA, Hb.

3092.—PLEUROTA NITENS, Stgr.

Pleurota nitens, Stgr., Hor. Soc. Ent. Ross., VII, 260-1, 294, No.

7, Pl. III, 12 (1870)⁽¹⁾; Stgr.-Wk., Cat. Lp. Eur., 304, No. 2199 (1871)⁽²⁾; Stgr.-Rbl., Cat. Lp. Pal., II, 165, No. 3092 (1901)⁽³⁾.

Antennae white. *Palpi* white, smeared along the outer side of the median joint and on the lower half of the expanded brush with greyish fuscous. *Head* and *Thorax* silvery white. *Forewings* shining, silvery white, with a slight rosy tinge, especially toward the dorsum; a broad pale bronzy brown band, below the costa from the base to the apex, gradually reduces the width of the silvery costal space above it, and a few bronzy brownish scales are found along the termen before the silvery white cilia which assume a greyish tinge outwardly. *Exp. al.*, 22—26 mm. *Hindwings* and cilia rosy grey. *Abdomen* and *Legs* pearly greyish.

[*Caenotype*, ♀ (96679); ♂ (96680). Mus. Wlsm.]

Hab.: GREECE⁽¹⁻³⁾—Attica, *e*IV⁽¹⁾—ALGERIA—Biskra, 20.III—13.IV.1903; Hammam-es-Salahin, 2—13.IV, 16.V.1903, 19—21.IV.1904; El-Kantara, 4.V.1903. Thirty specimens.

Common on the hills behind the hot springs and on the plain preceding them. In some specimens the dorsal half of the forewing is suffused with bronzy scales, sometimes concentrated towards the base. Both sexes are alike in markings.

Perhaps nearest to *bicostella*, Cl., but a much more brilliant species, and in some respects intermediate between it and *macrosella*, Rbl. I did not meet with var. *aurata*, Stgr., which is probably a distinct species.

3114: 1.—PLEUROTA HASTIFORMIS, *sp. n.*

Antennae ashy grey. *Palpi* hoary whitish, with a dark greyish brown streak along the outer side of the median joint; terminal joint rather short suberect. *Head* and *Thorax* hoary white. *Forewings* rather short, sharply lanceolate; hoary white, dusted with brownish grey scales, except along the costa where a pure white streak reaches from the base into the commencement of the costal cilia, and below it where a broader grey streak runs from the base to a little above the apex; a small fuscous dot lies at the end of the cell, and some dark brownish grey scales form a line along the outer half of the dorsum and on the termen preceding the pale brownish cinereous cilia. *Exp. al.*, 10—12 mm. *Hindwings* and cilia pale brownish cinereous. *Abdomen* brown-grey. *Legs* pale brownish cinereous.

Type, ♂ (96702). Mus. Wlsm.

Hab.: ALGERIA—El-Kantara, 8.IV—5.V.1903. Thirteen specimens.

Common at El-Kantara among *Artemisia herba-alba*.

Closely allied to *semicanella*, Cnst., and *protasella*, Stgr., differing from the former in the presence of a dark spot at the end of the cell and from the latter in the absence of the two dark spots towards the base.

(To be continued).

SOME OBSERVATIONS ON *HASTULA HYERANA*, MILL.

BY T. A. CHAPMAN, M.D.

(Continued from page 104).

In 1904, by the middle of March, *Tortrix unicolorana* had all spun up, most of them for some time, and all had emerged before the end of the month. At this date larvæ of *H. hyerana* could still be found by no means full-fed, and a few were still larvæ, feeding, on April 23rd, when however most of them had spun up. At the end of June there was no sign of any larva pupating. On August 10th a moth emerged, and four more appeared up to August 31st, two on September 14th, and one on September 15th, and one on the 16th. At this date some, not all, of the cocoons were examined, most were in pupa, but two were observed still to be larvæ. To the end of September twenty-six emerged, and nineteen more to October 19th, when the last came out. The two on lupin emerged one on September 30th and one October 17th. The first nine were all pale forms. Of the last seventeen, nine were dark. So that there was an appreciable tendency for the earlier emergences to be pale and the later dark.

The specimens bred by my friend M. Bourgeois at Geneva, gave, he tells me, the following results. He bred seven, one emerged August 27th, pale.

Three were pupæ and three larvæ on September 4th.

The last pupated on October 8th. By the 13th three more had emerged of which one was dark. The remaining three of which two emerged October 24th, and the last November 16th, were all dark.

I had better perhaps put altogether the points in which my experience of the insect differs from Millière's. He says the larvæ live in the stems in the manner of *Nonagrias*, or more especially of *Schænobides*, and not like Tortricæ usually do. He says, however, that he found many burrows of the larvæ empty, their tenants having gone off to pupate. I fancy from this that he found his larvæ chiefly in the flowering stems, as he says he got them by splitting the stem. I should describe the larva as leading quite a *Tortrix* life and generally amongst the leaves. I found, however, when many of them had left the plants full-grown, that one often found a belated larva in a deformed flower stem, usually amongst the flowers, and it was probably these that Millière met with. But here also they lived in a

Tortrix burrow, with silken galleries, and not in the plant tissue in an interior burrow.

I am not quite clear how to specify the difference, as the larva makes a burrow right into the flower head, but what I seem to realize as the difference is that the *Tortrix* burrow is *anywhere*, right into the stem rarely, by preference between two opposed outer surfaces, sometimes almost outside, but always with silken protections of various sorts. He correctly says the larva leaves the plant to pupate, he describes the silk as brownish ("*brunâtre*"), it is really rather pale. The great hiatus, however, that I find between Millière and myself, is that he says they make their cocoon "*et se métamorphosent très promptement.*" "*L'état de chrysalide dure de cinq à six semaines.*" Now I find that they do not change to pupa for three or four months and that then the pupal stage only lasts less than three or four weeks. Unfortunately Millière gives no dates beyond that his visit to Hyères was in April. As his paper is two years later he probably trusted too much to memory.

The imago is described by Millière (Annales Soc. Ent. Fr., 1857, p. 803). He defines the colour as straw-yellow, the base slightly smoky. He notes the silky lustre which is so pronounced, and describes the discal spot as inclined to be divided, and notes a variety in which it had an extension in the direction of the anal angle. He says that he reared at Lyons from the pupæ he took home nearly fifty imagines, so that it is astonishing that he says no more as to variation. My specimens, fifty-six in number, present a good deal of variation. In the first place they divide themselves sharply in two sets, one of a yellow and the other of a leaden-grey colour. These number respective 34 yellow and 22 leaden. In each set there are one or two making some approach to the other, but there is a definite gap, so that none of these *quasi*-intermediate forms are otherwise than definitely belonging to one or other set. There are none that are intermediate in the strict sense of being as much one as the other.

PLATE IV.

To deal first with the yellow ones. The ground colour varies, some are a very pale straw, most are of a rich creamy-straw, whilst several are rather orange, one quite a pinky-orange. The discal spot varies much, in no instance is a specimen absolutely without it, but one, and another is very close to it, has it so minute, that if it were in a series of spotless specimens it is doubtful if its possession of the spot would be detected. In more than half the specimens the spot is a definite small rounded dot, from the evanescent form just referred to up to a size nearly that of a full stop on this page.

Not one shows the extension towards the anal angle described by Millière, yet though I hardly like to suggest it, I think one or two of my specimens *are* the *rar* he describes, but the extension is basal, giving the spot however almost exactly the form he figures. The variations in this direction are (1), a slight line basewards from the spot for about 1 mm., with a slight dotted shade above it. (2), the same line reaching quite 2 mm. (3), the line wanting, but the spot shading inwards and upwards to the upper dotted shade, making a comma-shaped mark. (4), the upper shade as a separate spot rather larger than the typical one. The actual position of the spot is at the end of the cell at bases of veins 3, 4, and 5.

I find nothing that corresponds well with the slight smokiness of the wing base, but there are only two specimens that have been fully described, when the ground colour and the spot have been dealt with. I think the dark scales forming the further markings belong to a tendency to darkening that finds full expression in the leaden variety. Practically every specimen is slightly different from its neighbour. The commonest marking is a row of dark dots along the inner margin, most commonly five or six of these towards the anal angle, one specimen shows ten reaching two-thirds of the way from anal angle to wing base, another several more, but some of them have only a scale or two. I note these in twenty specimens. Another set of dark scales form dark shades in the interneural spaces, beyond the discal spot, in fourteen specimens, and in several they extend also basally in slighter fashion. Under a lens the scales forming these dark shades have a rich purple colour. In one specimen this shading involves the whole wing except the nervures, but the dark scales being intermixed with yellow, it is still definitely a pale specimen. Another dark mark is in the fringe. The fringe has a row of short basal scales with larger beyond. This basal set of scales are dark from the apex downwards, to nearly half-way to the anal angle, in one case nearly reaching the anal angle—this line occurs in eight specimens. The dark purplish line with the yellow fringe beyond is very effective. There is some sexual dimorphism, the males presenting a larger proportion of orange, the females of straw coloured specimens.

The dark specimens (22 in number) are apparently the same as a specimen (the only one so far apparently noted), taken by Lord Walsingham at Gibraltar, and named by him (in MSS.) *marginata*, without definitely giving it specific rank. In these the whole disc of the upper wing is of a leaden colour, as polished and brilliantly shining however as the pale ones. The hind-wings are also much darker than in the yellow ones. Nearly all specimens have the head and thorax yellow, a varying amount of yellow shade along the costa, fringes of the hind margin yellow, and a portion of the base and inner margin yellow, where it touches the dorsal thoracic yellow, when the wings are closed. There is some variation in the extent and brilliancy of the yellow. In two or three specimens there is a distinct suffusion of yellow scales over the whole wing, traceable but much slighter in a few others. The dark fringe line noted as occurring in the pale form, is present in nearly all specimens, separated from the leaden colour of the wing disc by a narrow yellow line. This yellow line often fails towards the apex, the dark line reaches the anal angle not infrequently, but often fails to get so far. No specimen fails to show this colouring of the fringe of the hind margin, which makes three lines—a narrow yellow, a narrow dark, and a broader yellow, but in a few the yellow lines are obscured by having a darker coloration, but in no case do they

quite assimilate to the dark wing disc. In several specimens both of pale and dark, there is a tendency to a dark line along the base of the fringes of the hind-wing, but in only two (one of each) is it at all marked.

MELANISM.

How can we explain the very large proportion of dark specimens amongst my bred *H. hyerana*? At first I thought that dark specimens were unknown (one only, taken last year [1903] at Gibraltar), because there were really very few specimens in collections, and this is no doubt an element in the case. But then Millière bred nearly 50 moths without one dark one. Millière took his cocoons to Lyons, where the climate is no doubt much hotter in summer than here, and more like that of Hyères, and so we may suppose that a cooler temperature during summer may account for the difference. The summer climate of Geneva, however, cannot be very different from that of Lyons, and M. Bourgeois bred dark specimens there. Gibraltar also is not quite British in climate. Again, we do not know precisely how successful *hyerana* may be when at home in hiding for æstivation deeply amongst stones and rubbish out of the heat. I think after speculating on all possible explanations there will remain an unexplained margin, only to be set down to a change in the constitution of the species, by which a melanic phase has arisen, as it has done in so many species in England and elsewhere.

I hope that Mr. Powell will succeed in throwing more light on this question in the coming season.

(To be continued).

LIFE-HISTORY OF, AND NOTES ON, *LEUCANIA FAVICOLOR*, BARRETT.

By PAYMASTER-IN-CHIEF GERVASE F. MATHEW, R.N., F.L.S., F.E.S.

(Concluded from page 108).

The young larvæ when removed from beneath the flakes of wood, where they lie close together side by side, at once retire to any crack available. Owing to this habit I found it difficult to make a thorough examination of the living larvæ until they were well grown in the 1st skin. When freshly hatched they were pale coloured, somewhat flattened dorsally, and tapering slightly from head to anus. The head, which is carried horizontally, is pale brown. The scutellar plate large and distinct, hairs of medium length with fairly conspicuous chitinous tubercles at the base. The skin appears much wrinkled and bears a sparse coat of small spicules. The larva drops on a thread and loops but very slightly in crawling.

July 21st, 1903.—Ova of *L. pallens* received from Rev. C. R. N. Burrows who very kindly forwarded me a large batch for comparison with *favicolor*. Three or

four of these were laid beneath a loose flake of wood at the bottom of a chip box, a very large number between the side of the box and a blade of grass that was coiled round the inside of it, a few much smaller batches were also laid on the outer side of this grass blade, and still others between the folds of a short length of ribbon grass. These ova are comparatively freshly laid and are full and rounded, quite unlike the ova of *favicolor*, which, however, were about to hatch when I examined them, so that the comparison may not be of much value. They are fairly firm and are quite easily detached, nearly globular in shape, just a trifle flattened at base, with a diameter of between 6 and 7 mm. They are certainly delicate, but do not merit (as yet) the description of mere shapeless transparent skins, applied to *favicolor* just before hatching. A sharp but very delicate slightly raised cell pattern is visible on the surfaces that have not come in contact with the sides of the cavity in which they are laid, or the adjoining eggs. These cells run together at the top and form a delicate micropylar rosette. Such fragments of shell as have not been eaten by the larvæ of *favicolor* give no evidence of any value, either negative or positive on comparison.

July 21st, 1903.—*Young larvæ of favicolor well grown in 1st skin.* *Head*, small, rounded, and slightly notched on the crown, surface polished of semi-transparent appearance; the colour of one of the larvæ under examination was bright brown, of another it was very much darker and nearly black in places. The head is now carried in a more vertical position than when freshly hatched.

Body.—This tapers from head to first abdominal segment, and from thence very gradually to the anus. The segments are very plainly marked, they show five sub-divisions on the meso- and meta-thorax, four only on the abdominal segments, but as division between the first two is very faint the appearance is rather of one large and two small ones. Both prothoracic and anal plates are clearly marked but somewhat paler than the head. The tubercles are noticeable, having black chitinous bases bearing short brown hairs; the true legs are either black or dark brown; prolegs not distinctively coloured, the first pair not fully developed, but the second pair are used; the mode of progression is normally a quick, jerky crawl, though occasionally the larva loops considerably in the usual Noctuid fashion. The colours are dark green above, paler beneath, and they frequently appear patchy owing to the food in the intestines showing as a dark mass. There is a faint and narrow medio-dorsal streak and a similar but double line on the subdorsal area, there is also a sharp line of demarkation at the juncture of the ventral and lateral colouration.

Tubercles i and ii on meso- and meta-thorax are situated in transverse line, the inner tubercle being the smaller of the two; iii is situated in almost vertical line beneath ii, and below this is iv bearing a weaker hair than the others, it also has a small extension that gives the impression of there being two tubercles side by side; v is slightly to the front at a lower level, and the subprimary behind not quite so low as v; another subprimary vi below v is represented by a minute tubercle and hair. vii just above base of legs is a single haired tubercle. On the abdominal segments i and ii are set as normally at the corners of a trapezoid; iii is a short distance above the small dark coloured spiracle which might easily be itself mistaken for a tubercle if it were not for the absence of a hair. The spiracle is

placed centrally except on the prothorax and first abdominal, on the latter towards the posterior, and on the former towards the anterior margin. On the prothorax and 8th abdominal it is as usual considerably larger than on the other segments, while it is slightly enlarged on the 1st abdominal also. iv is on most segments directly behind the spiracle, but on some segments it is slightly above it; v is some little distance below the spiracle and slightly anterior to it on most segments. The marginal tubercle vii is single haired on the 1st and 2nd abdominal segments.

Larvæ in 2nd skin.—*Head*, pale brown, with two darker stripes down either lobe.

Body.—Anal and prothoracic plates pale brown, the thoracic and first abdominal segments are bright grass-green on the dorsal area, on the following abdominal segments this area is a duller and yellower green. A very broad bright grass-green lateral band, narrowly margined with white extends from head to anus, its lower margin just including the spiracles. The ventral area is both paler and duller, yellowish-green from 2nd abdominal to anus, and bluish on thoracic and 1st abdominal segments. There is a white medio-dorsal line and a similar subdorsal one on either side.

August 9th.—The first batch are now well grown in their 3rd skins. They are neat and compact looking larvæ, thickest at the 1st and 2nd abdominal segments, tapering gradually towards anus and more rapidly to head. The colours are now much darker, the dorsal and lateral areas are dark olive-green, the narrow medio- and subdorsal lines still persist; there is a dark lateral band which forms a hard line between the dark upper-side and the pale ventral area, there are also several faint dark lines between the lateral and subdorsal lines, and these together with the black tubercles and pale brown hairs give the general effect of an olive-brown back.

On September 22nd I made a careful comparison between the larvæ of *favicolor* and those of *pallens*, and noted as follows: Batch No. 2 of *favicolor* are in the same stage as those of *pallens* (about $\frac{1}{2}$ inch long). Those of Batch No. 1 are one moult ahead (about $\frac{3}{4}$ inch long). I could find no trace of any structural difference, nor any in the markings, only some divergence in the general colour, but here one was met by the difficulty of discriminating between how much was individual and how much specific variation, as there was considerable variation in this respect in the larvæ of each batch.

The only point of structural divergence noted seems to be that of the size of the eggs, but as in the case of *favicolor* the diameter was a matter of judgment and not of actual measurement, as with *pallens*. This point should be accepted with caution until confirmed.

Description of the pupa of *L. favicolor* from a dead specimen preserved in a weak solution of formaline.

The specimen, which is a male, is considerably shrunken, and the anal armature has apparently suffered considerably either in removal from the cocoon or in the post. Length 16 mm.; greatest diameter at end of wing cases; 4th abdominal

6 mm.; from head to tip of wings 10 mm. It is of quite the ordinary Noctuid shape, cylindrical and of tolerably even thickness, blunt at head and tapering rapidly to anus from about the 7th abdominal segment, the taper from 4th to 7th being very gradual.

In colour it is of a rich red-brown with polished surface, which is somewhat thickened and deeply but smoothly pitted on the dorsal anterior ridges of 5th and 6th abdominal segments, this character being slightly in evidence on the 1st and 4th abdominal segments as well. The colouration is much darker on these raised dorsal ridges. A few of the setæ on each segment are easily made out, notably iv and v and one of the trapezoidals, doubtless in a fresh specimen all would be traceable. The spiracles are small and somewhat raised, and the sexual organs though smooth are distinct. There is some tendency to a dorsal keel on the thorax, but probably this has been much accentuated owing to the shrinkage. The eyes are large and prominent. On either side of the labrum is a small raised process, but this is apparently only a corner of the eye cover, as there are no signs of a suture separating it off from the remainder of the cover. A small, narrow central slip beneath the labrum represents the labial palpi. On either side of this are the maxillæ, very large at their base and extending to the tips of the wings. The antennæ cases are much raised (? owing to drying), they do not quite reach to the tip of the wings, just outside these the covers of the second pair of legs extend to tips of wings, and inside these again are the covers of the first pair of legs reaching to within about one-third of the ends of the wings. There is also a small and very narrow slip between these last and the maxillæ sheaths, probably a portion of the cover of first femur. A narrow slip of the hind-wing is traceable as far as the spiracle on the third abdominal segment."

Dovercourt, Essex:
February 1st, 1905.

TRIPLAX BICOLOR, GYLL., A SPECIES OF *COLEOPTERA* NEW TO
THE BRITISH CATALOGUE.

BY RICHARD S. BAGNALL, F.E.S.

(Concluded from page 87).

The synonymy of this species has been terribly confused, apparently owing to the fact that authorities have copied statements from one another without taking the trouble to confirm their accuracy. Prof. Beare kindly undertook to unravel the tangle, and he has supplied me with the following notes on the synonymy.

Marsham, in his "Entomologia Britannica" (1802), vol. i, p. 122, described a new species under the name *T. bicolor*. Apart from the fact that, as usual, the description is so meagre that it will fit several of the species, we have authentic proof that this insect was only *T. ænea*. (There are in the Stephens' collection of *Coleoptera* in the British Museum two specimens, which are simply *ænea*, marked Marsham's types, and standing under the name *bicolor*.)

Gyllenhal, in his "Insecta Succica," vol. i, p. 205 (1808), gives a full and accurate description of a species of this genus, which he states to be Marsham's *bicolor*, but there is little doubt that he never saw any of Marsham's types, and from this mistake of Gyllenhal has arisen the whole confusion. Gyllenhal's description fits accurately the insect we are dealing with, and in most of the European works up to the present the species has been ascribed to him, as the first author to give a true and recognisable description.

Stephens, in his "Illustrations of British Entomology (Mandibulata)," iii, p. 89 (1827-35), copied Gyllenhal's description, and thus made it appear that he had taken steps to confirm Gyllenhal's supposition that his *bicolor* was Marsham's, but he did nothing of the kind. All three specimens in the Stephens' collection, as was pointed out by Mr. G. R. Waterhouse* in his Catalogue of British *Coleoptera* (1861), were incorrectly named, two being *ænea*,† and one *lacordairei*, and it is the neglect by some of the Continental authorities of the clear and explicit statement of Mr. Waterhouse, which has perpetuated right up to the present the confusion in the synonymy of this insect.

Lacordaire, in his "Monograph of the Erotylidæ" (1842), deals with the genus *Triplax* on pages 202 to 218. He ascribes *bicolor* (p. 215) to Gyllenhal, and states that Marsham's and Stephens' *bicolor* were synonymous with it; he evidently followed Gyllenhal in this matter.

Bedel, in "L'Abeille," for 1868-9, Vol. v, p. 1, published a Monograph of the *Erotylidæ* of Europe, North Africa, and Western Asia. In this monograph he ascribes Marsham's and Stephens' *bicolor* to *ænea*, Schall., but in the synonymy of *bicolor*, Gyll., he brings in again Stephens' *bicolor* in part, and he considers Charpentier's *scutellaris*, taken in Hungary, and described in Horæ Ent. Ross. (1825), p. 244, to be merely a variety of Gyllenhal's *bicolor*. Lacordaire had retained Charpentier's insect as a distinct species. In the same volume of "L'Abeille," p. 136, M. Bedel published three notes of corrections on his monograph, and in the second note refers to Mr. Waterhouse's examination of the Stephensian specimens of the genus *Triplax*. He says that Mr. Waterhouse had stated, in an article published in the Transactions of the Entomological Society of London, 3rd series, 1862-64, p. 129, that of the three insects standing under the name of *bicolor* in the Stephens collection two were *ænea* (and

* At the request of Prof. Hudson Beare, Mr. C. O. Waterhouse kindly re-examined these three specimens, and he absolutely confirms their identification with *ænea* and *lacordairei*.

† Stephens says (*l. c.*), "I possess a pair from Marsham's collection, and I once beat a single example from a birch tree in Coombe Wood in June."

these were marked Marsham types), and that the third specimen was *ruficollis*, Lac., = *lacordairei*, Crotch, and that this latter had by a strange confusion served as a model for fig. 4, plate 17, vol. iii, of the "Illustrations," to which had been attached the name *bicolor*. It will be seen, therefore, that as far back as 1868-9 a continental authority of high standing had abandoned the notion that Gyllenhal's insect was the same as Marsham's and Stephens', the evidence against such an idea being overwhelming, and yet, strangely enough, Ganglbauer, in "Die Käfer von Mitteleuropa," has gone back again, and insists that Stephens' insect is the same as Gyllenhal's, though he rightly enough ascribes Marsham's insect to *ænea*, Schaller.

Mr. Crotch, in "The Entomologist," 1870, vol. v, p. 7, published some notes, based upon Bedel's "Monograph," on the genus *Triplax*. He there introduced the name *gyllenhalii* for *bicolor*, Gyll., and, strictly speaking, Crotch's name ought to be adopted for the insect we are dealing with; as, since Marsham had already used the name of *bicolor* for another species, Gyllenhal's name, according to the strict law of priority, ought to drop; but as nearly all the European authorities seem to have made up their minds definitely to keep to the name of *bicolor*, Gyll., for this insect, it seems preferable, for the present at any rate, to retain that name.

Thomson, in his "Skandinavien's Coleoptera" (vol. v, p. 295), 1863, retains the name of *bicolor*, Gyll., but considers Marsham's insect to be a synonym of it. Stierlin, in "Die Käfer-fauna der Schweiz," 1900 (vol. i, p. 496), also retains *bicolor*, Gyll., and places *scutellaris* as a synonym of it; and this is the way it is treated in the latest European Catalogue of Heyden, Reitter, and Weise (1891).

In concluding these remarks about the synonymy of this insect, it ought to be mentioned that Ganglbauer has selected, as the name of the species, *scutellaris*, Charp., for what reason it is impossible to say.*

A few additional notes as to its habitat may be of interest. As mentioned before, it occurred with *ænea*, and this latter was in countless numbers, in fungi growing on elm and holly up to a height of twelve feet, or more, but *bicolor* was more local, and was found chiefly in fungi growing on elm, and later in the month on holly, and in greatest numbers at a height of about only four feet from the ground. There were numerous larvæ in the fungi, most probably those of *bicolor*, and in cells in the fungus stems I found some freshly emerged *bicolor*. It appears probable, therefore, that its larval and pupal life

* Ganglbauer probably considered it necessary to adhere to the strict law of priority, and therefore to abandon the name *bicolor*, owing to its use by Marsham in describing *ænea*.

is spent within fungus. All the specimens of *ænea* taken were fully mature, and amongst them were a few taken from fungi on yew, agreeing in all respects with *ænea*, but with the elytra shining black, instead of the usual bluish-green colour. Upon briefly examining one of these holly trees a few days ago (Feb. 5th, 1905) *ænea* was found in even greater numbers than in the summer, making the fungoid surface beneath the bark one blue glittering mass, and in a web wherein numbers of *ænea* had perished, a mutilated example of *bicolor* was found. Further and more particular search, I am sure, will bring to light *bicolor*'s hibernating quarters.

One point is quite clear from Prof. Beare's examination of the synonymy, *i. e.*, this particular species has never before been taken in Great Britain, and therefore it is a genuine addition to the British fauna.

My sincerest thanks are due to Mr. Holland for having first pointed out this interesting addition to our fauna, and to Prof. Hudson Beare for so kindly and generously supplying me with its literature and history.

Winlaton-on-Tyne :

February 8th, 1905.

Medon castaneus, Grav., near Oxford.—I have recently had the good fortune to meet with two examples of this apparently very rare Staphylinid in the Oxford district. The first was found on April 22nd, under a small stone in a sandy field at Boar's Hill, some three miles from the city; and a second specimen turned up at Tubney, on the 29th, in a sandpit at the edge of a wood. My friend Mr. W. Holland has also an unrecorded example of *Medon castaneus*, which he took in the same sandpit on May 4th, 1902.—JAMES J. WALKER, Aorangi, Lonsdale Road, Summertown, Oxford: May 16th, 1905.

Hydrotius fuscipes, L., var. *æneus*, Sol.—Two specimens of this uncommon and handsome variety of an abundant water-beetle have recently come under my notice; one, a fine purplish-coppery form, being found among the residue of the *Coleoptera* taken by me in the Isle of Sheppey in August, 1904. The second, bright brassy-green in colour, was taken on May 6th in a small pond near Horsell, Surrey. In the Oxford district the predominant form of *H. fuscipes* appears to be the variety (?) *picicrus*, Thoms.—ID.

Notes on Diptera in the New Forest, 1904.—As regards weather this was a decided improvement on the previous year, and generally speaking a good one for *Diptera*, but the few collectors I met were all agreed as to the comparative scarcity of many usually common species, to which the heavy and continuous rain of 1903 may have been a contributing cause. On the other hand it will be remembered in

consequence of several good and rare species having been taken, which had not been met with for many seasons, including *Pedicia rivosa*, L., *Ctenophora ornata*, Mg., *Tabanus cordiger*, W., *Atherix marginata*, F., *A. crassipes*, Mg., *Eristalis cryptarum*, F., and *Phortica variegata*, Schur., but I regret to say only two of these came to my net. From Mr. B. Piffard I obtained a specimen of *E. cryptarum*, taken at the end of May, and several were taken later by Mr. Andrews, as reported in the March number of this Magazine, but my own visits to the locality were unsuccessful, the weather being unfavourable on each occasion. Never having previously met with any of the genus *Atherix*, during twelve years' collecting, I was surprised to find on July 13th a ♀ *A. marginata* in my garden, and later in the day took a ♂ at Brockenhurst Bridge, a much more likely place for it; and on informing Mr. Andrews of this he took up the running, which resulted in his finding the species abundant on alders, &c., further up the stream. Quite at the end of September, and just before leaving Lyndhurst for the season, I found *Phortica variegata* swarming about a *Cossus*-infected oak close to my cottage. The species was unknown to me at the time, but recognising something new I netted a good many, which were subsequently named by Col. Yerbury, who reminded me that this rather large Drosophilid was recorded by Dr. Sharp as new to Britain, from specimens taken the previous year also in the New Forest (see Ent. Mo. Mag., vol. xxxix, p. 248). Other captures included *Leptomorphus walkeri*, Curt., *Ceroplatus tipuloides*, F., *Chilosia bergenstammi*, Beck., *Sphegina clunipes*, Flin., *Xylota florum*, F., *Chrysoclamys ruficornis*, F., *Limnophora lilorea*, Flin. (?), *Azelia aterrima*, Mg., *Lispe tentacula*, Deg., *Hydromyza livens*, F., *Trichopalpus fraterans*, Mg., *Scoliocentra villosa*, Mg., *Acidia lychnidis*, F., and another ♀ specimen of the still doubtful *Palloptera*. I also obtained from Mr. Piffard two *Oxycera trilineata*, F.—FREDK. C. ADAMS, 50, Ashley Gardens, S.W.: March 8th, 1905.

Occurrence of Pulex cheopis, Rothschild, at Plymouth.—It may possibly interest your readers to know that Lieut.-Col. G. M. Giles, I.M.S., captured an example of *Pulex cheopis*, *mili* (Ent. Mo. Mag., 1903, p. 85), on *Mus decumanus* at Plymouth, on April 16th last. This is the flea usually associated with the spread of plague, and it has not previously been recorded from the British Islands.—N. CHARLES ROTHSCHILD, 118, Piccadilly, W.: May 4th, 1905.

Pulex cheopis, Rothschild, in England.—Wishing to obtain specimens of rat-fleas to illustrate, in relation to their supposed connection with the transmission of plague, I had occasion to examine a number of rats (*Mus decumanus*) taken at Plymouth, and amongst them came across a specimen of the above species. As this flea is hitherto recorded as a purely tropical form, I submitted the slide to the well known authority on the subject, the Hon. N. C. Rothschild, who has been kind enough to examine it and confirm the diagnosis. As a great naval port, Plymouth is in constant communication with all parts of the tropical world, through her war ships, so that the importation, assuming it to be such, might easily be accounted for, but on the other hand, this group of insect parasites has hitherto not received the attention it deserves, and it seems possible that it may be merely a not very common species, which has been overlooked.—G. M. GILES, I.M.S., Rtd., Byfield, Mannamead: May 11th, 1905.

Review.

QUEEN-REARING IN ENGLAND, WITH NOTES ON A SCENT-PRODUCING ORGAN IN THE WORKER-BEE. THE HONEY-BEES OF INDIA AND ENEMIES OF THE HONEY-BEE IN SOUTH AFRICA. By F. W. L. SLADEN, F.E.S. Pp. i—vi and 1—56. London: Houlston and Sons, Paternoster Square, E.C.; and "British Bee Journal" Office, 10, Buckingham Street, Strand, W.C.

This little treatise gives a very interesting account of the most modern methods of breeding queen bees, and gives illustrations of the contrivances used to induce the workers to raise new queens, when from some reason the original queen has been removed from the hive or shows signs of failure. It is arranged under eight headings: 1. Queen rearing in Nature; 2. Modern Queen rearing; 3. Nuclei and fertilization of Queens; 4. How to save Queens reared under the Swarming impulse; 5. Drones and Drone rearing; 6. Introduction of Queens and sending Queens by post; 7. Races of Bees; 8. Breeding for Improvements; followed by the notes mentioned in the title.

We recommend this not only to Beekeepers, but to any Entomologist who wishes to learn the adaptability of the Hive Bee to its surroundings.—E. S.

Obituary.

Dr. Alpheus S. Packard.—On February 14th, 1905, Professor Alpheus Spring Packard departed this life at Providence, Rhode Island. He was born in 1839 at Brunswick, Maine, where his father at the time held a distinguished position in the Faculty of Bowdoin College. Young Packard graduated with high honours from Bowdoin in 1861, and after completing a course in medicine at Harvard in 1864, he immediately entered the service of his country as an Assistant Surgeon in the United States Army, in which capacity he served until the close of the Great War of the Republic in 1865.

Already in boyhood he had become deeply imbued with the love of Nature and scientific research, and had made such progress along these lines that when he gave up his commission in the army he was at once chosen to be the Librarian and Custodian of the Museum of the Boston Society of Natural History. While holding this position he entered enthusiastically upon advanced studies, guided in some measure by the elder Agassiz, and being affiliated by his tastes and pursuits with that company of choice young men who, deriving their inspiration from Louis Agassiz, have left in their work the most enduring monument to their great teacher. Great as have been the services which these have rendered to the cause of science in America, none of them have exceeded in the amount of careful and original work performed by the indefatigable efforts of A. S. Packard.

After holding the Custodianship of the Boston Society of Natural History for some time he became Curator of the Essex Institute, afterwards Curator and subsequently Director of the Peabody Academy of Science. From 1877 to 1882 he was a member of the United States Entomological Commission; and from 1878 until the time of his death he was Professor of Zoology and Geology in Brown University, Providence, R. I. He was elected an Honorary Fellow of the Entomological Society of London in 1884.

Professor Packard was one of the founders of the "American Naturalist," and edited this important journal for twenty years. He was a most voluminous contributor to Zoological literature, and more particularly to the literature of Entomology. The bibliography of his writings upon our science includes many hundreds of titles. From 1868 until 1872 he published a record of American Entomology. His "Text-book of Zoology" has been widely used as a manual of instruction in American Colleges and Universities. In 1869 he published the well known work "A Guide to the Study of Insects," which ranks as a classic upon the subject, and has passed through many editions. In 1876 he gave to the world in large quarto as one of the volumes of Hayden's Survey issued by the United States Government, his great work, "A Monograph of the Geometrid Moths or *Phalænidae* of the United States," illustrated by thirteen plates. In 1895 appeared his "Monograph of the Bombyeine Moths of America north of Mexico; Part I, *Notodontidae*," illustrated by forty-nine carefully prepared plates, and numerous maps. In 1898 he published his "Text Book of Entomology," a work dealing with the subject from the standpoint of the anatomist and morphologist. It reveals as no other of his writings do, his vast capacity for original and minute investigation, and his marvellous industry. One of his most recent publications is entitled "Lamarek, the Founder of Evolution: his Life and Work."

Professor Packard was a man of most lovable character. The atmosphere of controversy was not congenial to him, and he "studied peace and pursued it" in his relations with his scientific brethren. He was always ready to aid those who required assistance in their labours, and young men beginning a scientific career always found in him a sympathetic adviser and friend.

Among American Naturalists he held a very high place; very few were accounted his superiors in general knowledge of Zoology, and none in knowledge of the anatomy of the Invertebrates.

By his death science, not only in America, but throughout the world, has sustained a great loss. His place will not soon be filled, for it may truthfully be said that very few men have ever possessed so wide and, at the same time, so accurate a knowledge of all the manifold complexities of the anatomy at once of vertebrates and invertebrates as was possessed by Packard.

[We are very much indebted to Dr. W. J. Holland, LL.D., F.E.S., for this tribute to the memory of our distinguished American fellow-worker.—EDS.]

Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: *February 20th, 1905.*—Mr. G. T. BETHUNE-BAKER, President, in the Chair.

ANNUAL MEETING.

The various Annual Reports were received and the Officers of Council elected for the ensuing year.

Mr. W. D. Collinge, The University, was elected a Member.

A resolution was carried to invite the following gentlemen to become Honorary Members of the Society: Mr. H. St. J. K. Donisthorpe, F.Z.S., Rev. F. D. Morice, M.A., F.E.S., Mr. E. Saunders, F.R.S., and Mr. J. W. Tutt, F.E.S.

Mr. G. H. Kenrick exhibited a few insects collected by himself in the North of Scotland last year in the intervals of shooting; he said that the most interesting perhaps were some silvery specimens of *Larentia autumnata*, Bleh. They also included *Calocampa solidaginis*, Hb., which was not uncommon, *Anaitis paludata*, Thmb., var. *imbutata*, Hb., &c. Mr. J. T. Fountain, *Adopæa thaumas*, Hufn. (linea, F.) and *A. lineola*, Ochs., taken at the same time in the Wye Valley; also bred *Actias selene*, Hb., reared in this country from Indian ova. Mr. A. H. Martineau, a small spray of oak upon which were the galls of three different species all close together; they were probably made by *Neuroterus lenticularis*, Ol., *Andricus fecundatrix*, Hart., and *Dryophanta divisa*, Hart. He also showed *Pemphredon lethifer*, Schuck., bred from bramble stems gathered at Marston Green, together with its parasites, the Chrysid *Ellampus auratus*, L., and the Ichneumon, *Perithous divinator*, Rossi. Mr. W. Harrison showed series of *Eriogaster lanestris*, L., bred from a brood of larvæ found at Trench Woods, some of which had emerged in 1902 and others in 1904.

March 20th, 1905.—The President in the Chair.

Sir George Hampson was elected an Honorary Member of the Society.

Mr. A. H. Martineau exhibited *Zeuzera pyrrina*, L., taken at light at Solihull, also an entirely black specimen of *Formica rufa*, L., from Hay Woods. Mr. G. H. Kenrick, a fine lot of *Pyralidæ* from New Guinea, including some new and many rare species. Mr. H. W. Ellis, a specimen of the rare beetle *Platydemus dytiscoides*, L., from the New Forest. Mr. Colbran J. Wainwright, four specimens of *Ptilops nigrita*, Fall., a species of the *Tachinidæ* new to the British List, found by Dr. J. H. Wood in Herefordshire in various localities. He said that since receiving Dr. Wood's specimens he had seen one taken by the late Rev. T. A. Marshall, near Teignmouth. Mr. H. W. Ellis, a number of the late John Sang's exquisite colour drawings of insects. Mr. Gilbert Smith, a specimen of *Callidium violaceum*, with two tibiæ and two tarsi on the left hind-leg, also the rare Longicorn, *Mesosa nubila*, from the New Forest. Also a number of an Ichneumon found amongst the refuse stuff of an old stump, badly infested by *Rhagium bifasciatum*, upon which it had most likely lived, and huddled together for hibernating.—COLBRAN J. WAINWRIGHT, *Hon. Secretary*.

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY:—The First Ordinary Meeting of the Session was held in the Royal Institution, Liverpool, on Monday, January 16th, Mr. WM. WEBSTER, M.R.S.A.I., in the Chair.

The Rev. Chas. E. G. Kendall, B.A., Ripon Street, Preston; and Mr. Albert Wade, F.E.S., Frenchwood Street, Preston; were elected Members of the Society.

Donations to the Library were reported by the Secretary from Messrs. H. St. J. K. Donisthorpe, F.Z.S., G. R. Charnley, F.Z.S., and H. B. Score, F.R.G.S.

A paper was communicated by Mr. E. J. Sopp, F.R. Met. S., F.E.S., on the *Orthoptera* of Lancashire and Cheshire. Mr. H. B. Score, F.R.G.S., F.R. Hist. S., then read a paper on "Ants, and their ways," which was copiously illustrated by lantern slides. The lecturer treated of the general external anatomy of ants, and on the uses of their various organs; he then reviewed the habits of some of the

better known forms, and the life-histories of such well known species as the "Driver Ants" (*Anomma arcens*) of West Africa, the "Grain storing Ants" (*Atta barbara*) of Palestine, &c., the "Parasol Ants" (*Ecodoma cephalotes*), "Agricultural Ants" (*Atta molefaciens*), and others. Passing to a consideration of *Formica rufa*, *F. fusca*, *F. sanguinea*, *Myrmica ruginodis*, and other British species, he recapitulated what is known regarding the habits and life-history of the various species, and mentioned that he had for many months had under observation in a Lubbock formicarium a nest of our common black house ant, *Lasius niger*.

Amongst exhibits shown were a beautiful series of slides of larvæ by Mr. J. J. Richardson; *Acronyeta leporina*, *Anarta myrtilli*, *Liparis salicis*, *Fidonia atomaria*, *Cænonympha dorus*, &c., by Dr. Cotton; and *Periplaneta americana* and *Leucophaea surinamensis*, from the Liverpool Docks, by Mr. Sopp.—E. J. B. SOPP and W. B. HARRISON, *Hon. Secretaries*.

February 20th, 1905.—Mr. RICHARD WILDING, Vice-President in the Chair.

Mr. G. Lissant Cox, of Oxtou, was elected a Member of the Society.

Donations to the Library were announced from Messrs. J. W. Carter, F.E.S., H. B. Score, F.R.G.S., and E. J. B. SOPP, F.R. Met. S. A paper was communicated by Mr. Wm. Mansbridge, F.E.S., on "The Tortrices of the Liverpool District." Several allied groups of the Micro-Lepidoptera were also discussed, and notes of considerable interest relating to life-history given. Altogether 4 Pyrales, 6 Crambidae, 3 Pterophori, 43 Tortrices (of which 15 were bred), and 26 Tineæ were dealt with. A hearty vote of thanks was accorded the lecturer. Amongst the exhibits were the following: several cases of Micro-Lepidoptera, to illustrate the paper, including fine series of *Phycis fusca* = *carbonariella*, *Ephestia elutella*, *Teras contaminana*, *Dictyopteryx bergmanniana*—a very pallid form, *Catoptria æmulana*, &c., by Mr. Mansbridge. Varieties of *Abraxas grossulariata* by Mr. Mountfield. *Morpho cypris* (Colombia), *Caligo telamonius*, *Hypolimnas salmacis*, and *Dismorphia nemesis* (S. America), and a live specimen of *Dermestes peruvianus* from Liverpool, by Mr. J. J. Richardson. *Anonium sulcatum*, Oliv., and *Longitarsus æruginosus*, recent additions to the British List, by Mr. W. E. Sharp, F.E.S., *Edemera virescens*, L. (pair), and *Malachius barnevillei*, Puton, recent additions to the British List, and the very rare *Bagous lutosus*, Gyll., by Mr. W. Thoulless, F.E.S.; *Anchomenus gracilipes*, Duft., *Quedius nigrocæruleus*, Rey, and *Bembidium quadripustulatum*, Dej., all three captured and exhibited by Mr. E. C. Bedwell, F.E.S. *Triplax bicolor*, Gyll. (with *T. russica* and *T. ænea* for comparison), recently re-instated in the British List, by the Secretary on behalf of Mr. Bagnall. *Leucophaea surinamensis*, an exotic cockroach from the Liverpool Docks, by Mr. Sopp.—E. J. B. SOPP and J. R. le B. TOMLIN, *Hon. Secretaries*.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY:
February 23rd, 1905.—Mr. HUGH MAIN, B.Sc., F.E.S., President, in the Chair.

Mr. G. H. Briault, of Acton, was elected a Member.

There was a special exhibition of *Hybernia progemmaria*. Messrs. Harrison and Main, series from (1) Epping Forest, mostly typical; (2) neighbourhood of Liverpool, including a number of v. *fuscata*; (3) Delamere Forest, only a few

v. fuscata. Mr. Tonge, series from Tilgate Forest and Reigate, with some very prettily variegated forms from the latter place. Mr. Priske, a short series from Richmond Park, including one specimen with dark basal half to the fore-wings and the only example of southern origin approaching *v. fuscata*. Mr. Adkin, bred series from Yorkshire, and read notes on the brood, together with series from Rannoeh, Kent and Surrey. Messrs. Dennis, Rayward, Edwards and Turner also exhibited series from various southern localities. A discussion took place and it was noted (1), that all the southern specimens had light hind-wings, while in all *v. fuscata* forms they were dark; (2) all but *v. fuscata* had the submarginal row of light wedge-shaped marks on the fore-wing, and (3), a general absence of intermediate forms between the general type and the dark var. Mr. Priske, a specimen of *Helops striatus*, in which the left antenna was bifurcated about one-third of its length from the apex.—H. J. TURNER, *Hon. Secretary*

March 9th.—The President in the Chair.

Mr. Harrison exhibited a living specimen of a large green Orthopteron found among bananas imported from Jamaica. Mr. Main, a box in which a living Javanese spider had been kept. A number of ova had been deposited and a brood of young spiders had emerged. These had spun a dense mass of web and then shed their skins. He also showed a photograph of the larva of *Apatura iris* in its hibernating position on a leaf of willow.

March 23rd.—The President in the Chair.

Messrs. Harrison, Main, and Cowham, long bred series of *Colias edusa* from ova deposited by a ♀ var. *helice*, sent by Dr. Chapman from South France in 1904. 79 were ♂s, 71 ♀s. Of the latter 19 were typical, 52 var. *helice*. Only one or two specimens were in any degree intermediate in shade. Mr. Edwards, *Papilio peranthus* from Java, *P. gelon* from New Caledonia, *P. encelades* from Celebes, and *P. acauda* from the United States. Mr. West (Greenwich), some large species of *Homoptera* and *Heteroptera* from South Africa. Mr. Kaye, preserved larvæ of *Triphæna interjecta*, and pointed out the distinguishing characters from the larva of *T. orbona*, also exhibited. Mr. J. W. Tutt gave an address on "Our British Plumes," illustrating his remarks on classification by a phylogenetic tree.

April 13th.—The President in the Chair.

Mr. Winkworth, of Burdett Road, E.; Mr. Wright, of Woolwich; and Mr. Penn-Gaskill, of Wandsworth Common; were elected Members.

Messrs. Harrison and Main exhibited larvæ of *Nemeophila russula* in their last stage; they were from ova laid by a Cheshire ♂, and were feeding on dandelion; Mr. Cowham had reared a brood in the autumn from spring ova. Mr. Main showed his method of holding a twig with a larva or imago in position for photographing, by means of a compound clamp or test-tube holder and retort stand, as used by practical chemists. Mr. Adkin read a paper on "Belated Emergences," and exhibited various species in illustration.

April 27th.—The President in the Chair.

Mr. Bevis, of Ongar, was elected a Member.

Mr. Harrison exhibited living larvæ of *Agrotis ashworthii* from N. Wales. Mr.

West, *Lebia cyanocephala* and *L. chlorocephala* from Box Hill. Mr. Edwards, a number of species of the S. American groups of *Papilio*, *Endopogon*, *Hectorides*, and *Parides*. Mr. Kaye, long series of *Heliconius numata*, showing extensive variations, in the hind-wings particularly; and also pairs of *H. sylvana* and *H. novatus* (?); all from British Guiana. Mr. Turner, cases of *Coleophora saturatella* on broom. Mr. Sieh read a paper, entitled, "The Spot we stand on," and illustrated it with lantern slides.—H. J. TURNER, *Hon. Secretary*.

ENTOMOLOGICAL SOCIETY OF LONDON: May 3rd, 1905.—MR. F. MERRIFIELD, President, in the Chair.

Mr. J. Butterworth, B.Sc., was elected a Fellow of the Society.

Mr. M. Jacoby exhibited a series of *Xenarthra cervicornis*, Baly, from Ceylon, and drew attention to the curiously complicated structure of the antennæ of the ♂, those of the ♀ being simple. Mr. G. T. Porritt, specimens of *Tephrosia consonnaria*, ab. *nigra*, and melanic examples of *Boarmia consortaria*, from a wood in West Kent, by Mr. E. Goodwin. These forms were exactly on the same lines as the melanism in West Yorkshire, and it is curious they should occur in such widely separate localities. The two genera, however, are evidently prone to melanism, as Mr. Porritt has now seen black or almost black specimens of all the British species except *Tephrosia punctulata*. Mr. J. J. Walker, (1) two specimens of the very rare Staphylinid, *Medon castaneus*, Grav., taken in the Oxford district during the last week of April, 1905; (2) several examples of both sexes of the giant flea, *Hystrichopsylla talpæ*, Curtis, from field-mouse nests in the same district; and (3) the type-specimen of the Bostrichid beetle, *Dinoderus ocellaris*, Steph. (taken by the late Prof. Westwood at "Little Chelsea" previous to 1830), from the Hope Collection at Oxford. Prof. E. B. Poulton read a note on "Heliotropism in *Pararge* and *Pyrameis*," communicated by Dr. G. B. Longstaff. Prof. L. C. Miall communicated a paper on "The Structure and Life History of *Psychoda sexpunctata*, Curtis," by John Alexander Dell, B.Sc. Dr. D. H. Hutchinson gave an address on "The Three-colour Process as applied to Insect Photography," illustrated by lantern slides of British and Indian *Rhopalocera*; the exhibits showing a marked advance in excellence to anything yet shown at the Society's meetings. The President at the close of the proceedings heartily congratulated Dr. Hutchinson upon the results of his work.—H. ROWLAND BROWN, *Hon. Secretary*.

ODONATA COLLECTED BY MISS MARGARET E. FOUNTAINE IN
ALGERIA, WITH DESCRIPTION OF A NEW SPECIES
OF *ISCHNURA*.

BY KENNETH J. MORTON, F.E.S.

Miss Fountaine, the records of whose butterfly-collecting experiences in many countries must have been read with delight by all entomologists, had the kindness to take for me in Algeria during the past summer a large number of *Neuroptera*. These were sent forward by post from time to time and the perfect condition in which they

arrived compares most favourably with almost anything I have seen in the way of *Neuroptera* sent from abroad, and speaks of most careful collecting and handling. I would like to express here my thanks to Miss Fountaine for the courteous and ready way in which she has assisted me in this matter.

The collection proves to be of much interest, as it adds, as far as I can ascertain, two or three species to the Algerian fauna, and especially it comprises a fine series of the genus *Ischnura*, including a species that is certainly new. I propose to describe this new species now, and at the same time to give an annotated list of the other species of *Odonata* taken—22 in all.

In connection with the following notes it will be found useful to refer to the paper by the late Mr. McLachlan, "*Odonata* collected by the Rev. A. E. Eaton in Algeria," &c. (Ent. Mo. Mag., xxxiii, July, 1897, pp. 152—157). There is a considerable difference in the composition of the two collections. In point of numbers Miss Fountaine's captures compare well with those of Mr. Eaton—considering that they represent the result of but one season's collecting by one who had no previous knowledge of the Order. There is, however, an absence of some important forms of Mediterranean or North African type. This may be due in part to the fact that Mr. Eaton's came largely from the eastern province of Constantine, while much of Miss Fountaine's collecting was done in the province of Oran, which Mr. Eaton did not visit.

Subfam. LIBELLULINÆ.

Sympetrum fonscolombii, Selys.—The ♂ of this species when fully adult is in life a beautiful insect, and it much attracted Miss Fountaine, who sent a fine series of it from Sebdou, taken from June 26th till August 8th. It also occurred at Tlemcen, July 12th.

Sympetrum striolatum, Charp.—Téniet-el-Haâd, June 15th and 18th; Sebdou, July 1st; evidently less commonly met with than the next species.

Sympetrum meridionale, Selys.—Téniet-el-Haâd, June 14th and 18th; Sebdou, from June 27th till August 9th; also Tlemcen, July 13th.

Crocothemis erythraea, Brullé.—Biskra, April 2nd and 3rd. McLachlan (*l. c.*) remarks on the great variation in size and in intensity of colour. The latter no doubt depends on age. These Biskra examples are rather small.

Orthetrum ramburii, Selys.—Biskra, April 2nd, and Hammam R'Irha, April 11th, about half a dozen specimens, all teneral but one. I think, however, they are certainly all *ramburii*.

Orthetrum nitidinerve, Selys.—Téniet-el-Haâd, June 8th, 10th, and 17th; Sebdou, June 23rd to 30th, and odd specimens on till July 23rd.

Subfam. GOMPHINÆ.

Onychogomphus forcipatus, L.—Sebdou, June 30th and July 2nd, 2 ♀ ♀.

Onychogomphus uncatus, Charp.—Téniet-el-Haâd, June 13th; Sebdou, June 24th, 25th, and 30th. A species apparently of rather western distribution, not taken by Mr. Eaton. On the other hand, Miss Fountaine unfortunately missed *O. costæ* and *O. genei*, which occurred to Mr. Eaton in the more eastern districts of Algeria in April, May, and June, and which formed a very interesting feature of his collection.

Gomphus lucasii, Selys.—Téniet-el-Haâd, June 14th and 18th; two ♂ and two ♀. A ♀ from Sebdou, June 25th, remains a little uncertain.

Cordulegaster annulatus, Latr.—Sebdou, June 29th and July 9th; Tlemcen, July 14th; one ♂ on each date. Believed to be new to Algeria, although previously known from Morocco; a striking form—probably the extreme of var. *immaculifrons*, Selys. They may almost merit a distinct name, but my southern material is too small to allow me to pronounce as to this, being confined to a few ♂ ♂ from Digne, Basses Alpes.

Subfam. ÆSCHNINÆ.

Æschna mixta, L.—Téniet-el-Haâd, June 18th, one ♀ fully mature; certainly *mixta*, notwithstanding the early date.

Boyeria irene, Fosc.—Sebdou, June 26th till July 8th, a few ♂ ♂ and one ♀; Tlemcen, July 18th, one ♂; also new to Algeria. An interesting insect, of build somewhat like the tropical genera *Gynacantha* and *Acanthagyna*. Its known range appears to be rather restricted; Selys, in his 1887 list, gives Southern France, the Iberian peninsula, and the Mediterranean islands. I am not sure what the last may comprise, but the species occurs in Sardinia.

Subfam. CALOPTERYGINÆ.

Calopteryx hæmorrhoidalis, Van der L.—Sebdou. A series in mature and perfect condition, chiefly taken on June 25th, but single specimens are dated July 6th and August 6th and 13th.

Calopteryx exul, Selys.—Sebdou, June 25th. A single ♂, slightly imperfect, of this most interesting Algerian form.

Subfam. AGRIONINÆ.

Platynemis subdilatata, Selys.—Sebdou, June 25th, 26th, and 30th. A varied series (compare Mr. McLachlan, *l. c.*, p. 156, on the subject of the variation of this species). Miss Fountaine was especially struck with the delicate beauty of the white form, the ♀ of which has a reddish-brown head and thorax.

ISCHINURA FOUNTAINEI, *n. sp.*

♂. Head above bronzed black. Post-ocular spots moderate. Posterior margin of prothorax with the central lobe small and rounded. Thorax bronzed blackish, humeral lines obsolete or obsolescent. Abdomen above dark, blackish or greenish-black: segments 1 and 2 with metallic sheen, sides of these segments pale blue; segments 3 to 7 bronzed black, 8 pale blue, 9 and 10 black above. In

segment 3 the bronze is broadest in front, then narrows, expanding again towards the hind margin; 4 and 5 rather narrowly black widening towards the hind margin, and in 6 the black becomes rapidly broader, 7 being entirely black above; the lateral posterior part of 7 and the sides of 8, 9, and 10 blue; under-side of abdomen mainly yellow. The bronze on the upper surface of the middle segments seems to be rather narrower than in the other species.

In the ♂ the dorsal tubercle of segment 10 is little raised, but the excision is wide. The superior appendages are produced into a long process turned inwardly, these processes being closely approximated but not crossing; these appendages are blackish above, but beneath they are whitish or pale testaceous. The inferior appendages are large, nearly vertical, with an acute black tooth turned inwards, in some aspects traces of one or two minute teeth; excepting the teeth, all whitish.

In the only ♀ which can be associated with the ♂, the posterior lobe of the prothorax is distinctly raised somewhat triangular, the apex, however, almost truncate. Segment 1 of abdomen with an almost square bronzed mark; 2 with the bronze slightly narrowed behind.

Abdomen, ♂, 23 mm. Hind-wing, $15\frac{1}{2}$ —16 mm.

Biskra, 2nd April.

Apparently very distinct from all the other species of *Ischnura* found in Europe and Northern Africa, the inferior appendages of the ♂ being especially different. It differs from *I. graellsii* in the absence of the dorsal tubercle on the second segment of the abdomen, this tubercle being a character of *Ischnura maroccana* also (cf. Kolbe, Berliner Ent. Zeitschr. Bd. xxviii, 1884, p. 133). McLachlan (Ent. Mo. Mag., xxv, p. 349), expressed the view that these two species were the same. Be that as it may, neither has anything to do with the present species, and *I. lamellata*, Kolbe, seems to be equally excluded.

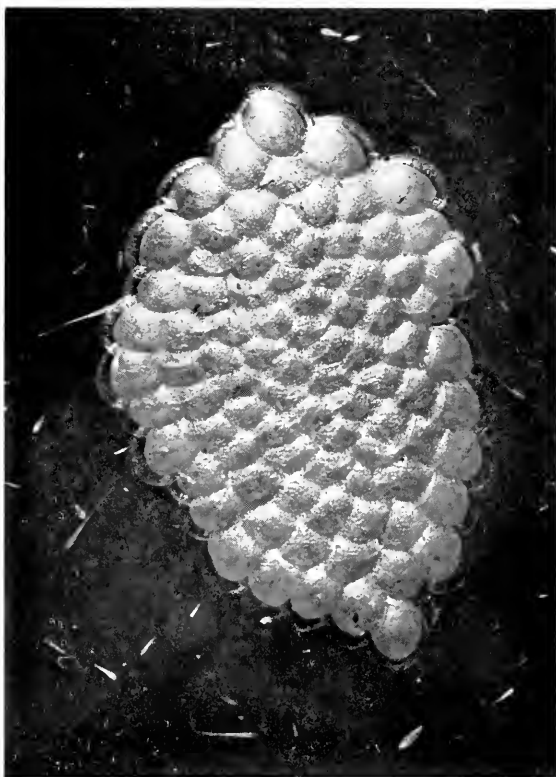
Ischnura graellsii, Rbr.—Sebdou, various dates, June 23rd to 30th. The examples are very similar to others before me from several Spanish localities (received from Father Navás).

Ischnura sp. ?—Biskra, April 2nd. I am unable to satisfy myself with regard to this form. I submitted two ♂ to Dr. Kis, who inclines to the view that they do not differ specifically from *graellsii*. The appendages are very similar, yet I think there are slight differences. Then the posterior margin of the prothorax shows converging pale crests separated by a slight excision, in this respect different from *graellsii*. The peculiar structure noticeable on the dorsum of the 2nd abdominal segment is also much less pronounced than in *graellsii* (cf. McLachlan, Ent. Mo. Mag., xxv, p. 349). These must remain doubtful until an opportunity arises of studying *Isch. genei*, to which species, it seems to me, they are allied.

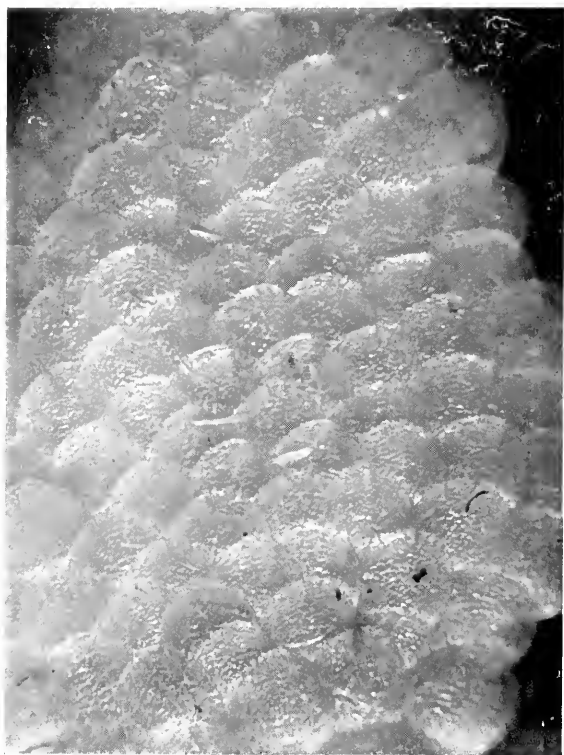
Pyrrosoma tenellum, Vill.—Sebdou, August 8th, 1 ♂.

Agrion mercuriale, Charp.—Sebdou, June 25th, 1 ♂.

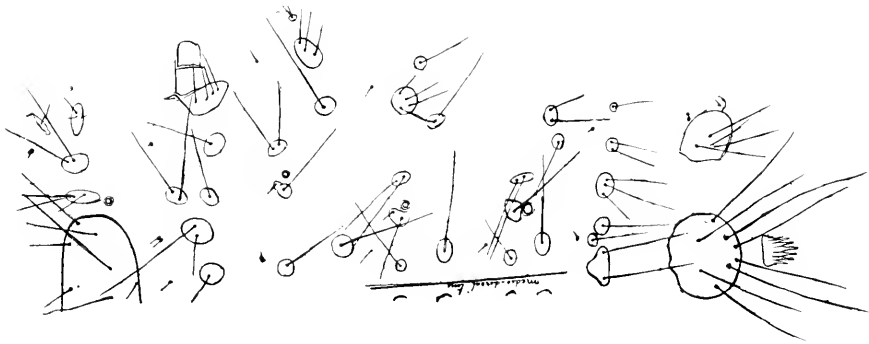
Agrion cærulevans, Fonsc.—Sebdou, June 23rd, 26th, and 30th. Both sexes. Personally I have not seen *Agrion scitulum* from Algeria, although it is recorded



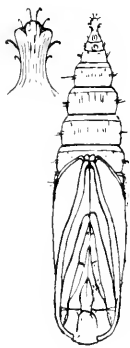
OVA OF *HASTERA HYERANA* $\times 11$.



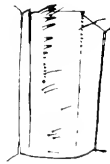
OVA OF *HASTULA HYERANA* $\times 20$.



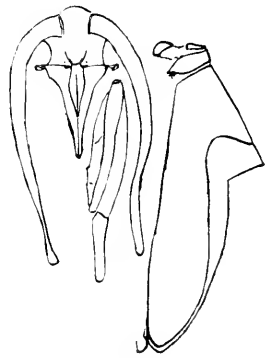
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2



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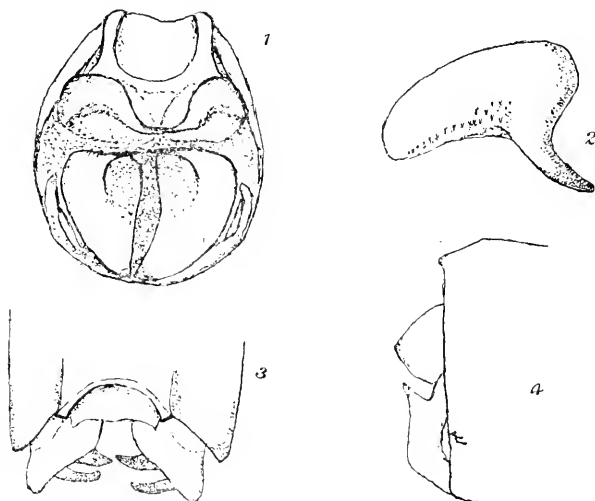
4

DETAILS OF HASTULA HYERANA.

from that country. I have, however, received *cærulescens* from Algeria under the name of *scitulum*; the two species are, without doubt, often confused.

Lestes viridis, Van der L.—Sebdou, August 3rd and 8th. A fine series of both sexes.

Sympycna fusca, Van der L.—Téniet-el-Haâd, June 16th; Sebdou, June 25th and 26th.



EXPLANATION OF FIGURES (*Ischnura fountainei*).

1. Apex of abdomen from behind.
2. Superior appendage viewed more from above (more enlarged).
3. Apex of abdomen from above.
4. Apex of abdomen from side.

13, Blackford Road,

Edinburgh:

13th February, 1905.

SOME OBSERVATIONS ON *HASTULA HYERANA*, MILL.

BY T. A. CHAPMAN, M.D.

(Continued from page 132).

PARASITES.

I did not detect any ordinary parasite affecting *H. hyerana*. No larva afforded any ichneumon cocoons or Dipterous pupæ, and apart from a few casualties, every larva that spun up produced a moth.

They had, however, a parasitic enemy of quite an unusual kind ; this was a larva of a *Syrphus* fly, that preyed on the larvæ, by hunting and eating them, just as so many Syrphid larvæ do with Aphides. I was, of course, somewhat struck by this fact and made various observations and experiments to satisfy myself that it was not a mere accidental occurrence, or that I was not in any way mistaken. I found the *Syrphus* eating (sucking?) the *Tortrix* larva, I found remains of *Tortrix* larvæ that had been eaten (partially eaten or sucked). I found larvæ in a plant disappear, and nothing to show for it but their remains and a larva of *Syrphus*. I searched sedulously for any Aphides or Coccids, or other possible prey of the *Syrphus*, not only on my plants with *hyerana* larvæ, but over many plants at large, but could never detect any, nor could I find larvæ of the *Syrphus* except with *H. hyerana*. A few *Syrphus* larvæ placed in a box with some larvæ of the *Tortrix* soon managed to catch and demolish the latter. As soon, as by the lashing movement of its head, the *Syrphus* touched a *Tortrix*, the latter was captured and unable to escape, a position of affairs of which I was much reminded when, later in the year, I fed some *Myrmeleon* larvæ with caterpillars.

I found the *Syrphus* larva in the living tubes of *hyerana*, but did not learn how they got in, and am unable to say whether their entry is due to some accident, or whether the best defences of the *Tortrix* are useless against the fly. These Syrphids pupated as soon as full-fed, they began to emerge as imagines April 24th, and had all come out in another week or two. I bred nearly a score. The fly is *Xanthandrus comtus*, Harris, a species that I learn from Verrall's work on *Syrphidæ* is a rather rare British species, and is held to be seen only in autumn.

Of course, the climate of Hyères is so different from ours, that no conclusions can well be drawn from the one to the other. One thing, however, seems so probable that one may almost say it is certain, and that is that the flies that emerge in April and early May do not survive to lay eggs the following February or March on the Asphodels, so that there must be an intermediate brood, one at least, that lives on some other plant, and eats some other insect, aphid, or larva.

I reared, after I got home to Reigate, a number of *Syrphus* larvæ from eggs found on *Veronica chamædrys*. These larvæ thrive well on Aphides, amongst which the eggs were found, but also eat larvæ, when supplied with them and deprived of Aphides. Several other captured *Syrphus* were experimented with, and some of them would

not touch larvæ, and others did so reluctantly. The *Veronica* Syrphid duly emerged, and proved to be the common *Melanostoma mellinum*, its abundance is perhaps a proof (or result) that the larva is more or less omnivorous, and capable of eating rather varied viands. It showed me, however, that larvæ were by no means an extraordinary food for Syrphids; the chief peculiarity in connection with *X. comtus* being that the larva is its normal food, and that its instincts are such as fit it for hunting the larvæ into the recesses of their burrows.

The larva of *X. comtus* is very like many other *Syrphus* larvæ I have casually noticed. It is green, with lateral markings of yellow and central of brown, which are due to items of internal anatomy, the skin seeming to be quite colourless and transparent, or nearly so.

The pupa is very globular, more so than any other *Syrphus* pupa I have observed; there is, however, a short tail ending in the posterior spiracles. This pupa illustrates more strongly than usual how the dried larva skin of *Syrphus*, when forming the puparium, expands greatly at the narrow cephalic end and shrivels to a mere scrap at the wide anal end. This "pupa" varies much in colouring. It may be pale green without mark or with three pairs of black dots, or it may be darker. It presents for a time much of the larval yellow and brown markings. The darker pupæ are more opaque, and have various actual skin markings. These are a brownish or reddish dorsal and lateral line, the three pairs of dots noticed, are produced obliquely backwards to the dorsal line, forming arrow-shaped markings, and in some the markings suffuse over the whole surface; the lateral line and the three dots are most persistent. Towards emergence the paler and more transparent pupæ show the contained imago with its markings curiously shortened in the nearly round case. The round portion of case is 5.5 mm. long, 4 mm. broad, and 3.5 mm. high. A little narrower and lower posteriorly than in front.

On October 1st, 1904, I placed in a jar a ♀ *H. hyerana*, ordinary form, with a dark (*marginata*) ♂, and some lupin leaves; I did not see them paired, but on October 4th I found two batches of eggs laid on the side of the jar. They were not very conspicuous, and I fancied one batch had been laid the previous night, and the other the night before, but had escaped observation, as afterwards one batch each night was the rule. The batches were each night smaller and smaller, till the ♀ became exhausted.

These first two batches then were the largest, supposing the 1st laid on the 2nd-3rd, it measured 17 mm. × 4 mm., and had about 30 eggs in length, and 6 or 8 in width. Its form was a little less regular than this description perhaps implies. It contained 233 eggs. The 2nd laid 3rd-4th was more compact but smaller, and 113 eggs

were counted in it. Thereafter each batch was noted the morning after it was laid, on the 3rd the 1st batch contained 233 eggs,

"	4th	"	2nd	"	113	"
"	5th	"	3rd	"	88	"
"	6th	"	4th	"	77	"
"	7th	"	5th	"	58	"
"	8th	no eggs laid.				
"	9th	the	6th	batch	contained	52
"	(10th)	no eggs laid, moth fed).				
"	11th	the	7th	batch	contained	26
"	13th	"	8th	"	13	"
"	16th	"	9th	"	23	"
"	18th	"	10th	"	16	"
"	20th	"	11th	"	9	"
"	21st	"	12th	"	6	"
"	24th	"	13th	"	7	"
"	25th	"	14th	"	3	"

724

The last were laid singly, and were small and misshapen, the moth laid no more eggs, and died a day or two later.

The total eggs laid were thus 724, and my impression was that the moth was not larger than half the bulk of some of the larger specimens, which would certainly lay over 1000, possibly 1500, eggs.

EGGS.

The eggs are oval, 1.06 mm. long by 0.75 wide, and are rather thin and scale-like. They are laid in patches, as with many Tortrices, in an imbricated arrangement. The eggs have a network of surface sculpturing, the cells of which are about 0.03 in diameter, and tend to be arranged in rows parallel to the egg margin.

The overlapping of the eggs in a group is such that each egg overlaps its neighbour by about $\frac{1}{3}$ of its width, and the one in front of it by nearly $\frac{2}{3}$ of the length, but the lines are not directly acute, but rather oblique; the arrangement is not identical over the whole of a patch, and the marginal eggs being somewhat radiating, there is more open order towards the edges.

PLATES V and VI.

Oct. 28th.—♀, died.

Oct. 30th.—A few larvæ hatched last night from the two first batches of eggs, and a large number about 11 a.m. to-day, this afternoon they are again quite quiescent. The 233 batch has afforded about 50 larvæ, the 113 one about 96. This batch was probably

therefore laid a day before the other, *i. e.*, on October 2nd—3rd, and not as the larger probably was, on 3rd—4th; a conclusion the reverse of that arrived at above. The young larvæ are white, with black head and plate, and are very active and capable of going through very minute clicks, so that they rapidly disappear if not looked to. A number are placed on an *Asphodel* about 6 inches high. The greater proportion of these disappear downwards and hide themselves between the leaves where they are in contact, a few, however, remain singly in the hollow of the leaves, and cover themselves with a little web of silk.

October 31st.—The larvæ yesterday seen under webs (and some others) are now in the substance of the leaves, having entered by a minute but very obvious hole, the larvæ themselves being in some cases fairly well seen, and in others only apparent as shaded spots, the leaf being at the spot too thick and the larva not close to the cuticle; other larvæ are still external, but down between leaves where they are in contact, and have made a little spinning, and produced some frass.

Of some placed yesterday on some leaves of a common perennial blue lupin, the only one visible without disturbing leaves has eaten a minute trench in the leaf of about one-half his own length.

Oct. 7th.—Eggs laid October 3rd, now have the young larvæ apparently quite matured inside, and the black head and thoracic plates are very distinct, and give a curious and interesting aspect to the patch, each head pointing in one direction, except the marginal eggs, in which all the heads are pointed outwards.

Nov. 2nd.—The larvæ placed on lupin make a web, generally of a tubular form, swung as a hammock, and eat the leaf at the front end of this, but never apparently mine into the leaf, whilst those in *Asphodel* nearly all burrow, one or two are still visible *between* the leaves towards their bases, where their surfaces are closely applied, only of course by separating the leaves.

Nov. 6th.—The larvæ seem to have been placed too abundantly on the *Asphodel*, as it is already looking sickly and yellow, and in places even drying, not where the basal burrows are but beyond them, several of the small leaves have many larvæ in them.

The newly hatched larva is about 1.2 mm. long, but 2.0 mm. if stretched, width of head 0.2 mm., white (or colourless), head and thoracic plate black, the legs and anal plate and bases of prolegs are also tinted dark, and more so some little time after hatching. The tubercles on abdominals are i, ii, and iii in usual places, iv and v with

front one highest, vi and three below. There is a well developed anal comb with five large teeth, and in some cases apparently one or two small ones at each end. The general skin surface is very finely spiculated with sharp points, the spiracles are prominent raised rings, faintly tinted brownish. The prolegs are circles of nine hooks, and the same number occur in the claspers, but are ranged along a semi-circle.

Nov. 13th.—The eggs laid October 10th have finished hatching; those laid 15th are hatching, and those of 17th are apparently ready to hatch; larvæ having cleared the egg of all surrounding material.

Nov. 20th.—Of eggs laid October 20th one is hatched, others mature.

Nov. 22nd.—Three more of eggs laid October 20th have hatched, of those laid later all are apparently mature, except one of the last lot (October 24th—25th), where the larva seems to have died when half developed.

Dec. 26th.—Larvæ preserved a few weeks ago in 2nd and 3rd instars, some are preserved to-day in 3rd instar, at 3rd moult, and in 4th instar. Two or three larvæ (not preserved) are a moult or two beyond this, and seem healthy on lupin.

The larvæ are whitish or yellowish-green, if not feeding, laid up for moult, &c., but are a darker, dirty bluish-green when feeding; some seem darker than others, probably from the food not being so fresh, and getting dark in the alimentary canal.

On February 4th nearly all the larvæ kept in a warm room and fed on lupin had spun up. Some half dozen in a cool room on *Asphodelus* were only in 5th instar. Placed on lupin, they seemed at first at a loss, but a few hours later had apparently made themselves quite at home and were feeding.

In the 2nd instar the larva is 2.5 mm. long. Head nearly black, width 0.4 mm., prothoracic plate dark, not quite black, anal comb blackish, 5 large teeth. Each tubercle has a well-developed scutellum; 15 hooks to ventral, 14 to anal prolegs. There is a very large development of tracheal branches in 8th abdominal segment, spreading from spiracle or main trachea to the surface of the whole of the alimentary canal in this segment. In two preserved specimens in which the tracheæ remain filled with air this appearance is very remarkable, and suggests a great demand for oxygen in some final digestive process occurring here. The skin surface is covered with very fine points, lying in transverse rows, about 60 to a segment, the rows most distinct, *i. e.*, most easily counted are those at posterior margin of each segment.

In the 3rd instar the length is, when stretched, 6—8 mm. The head is 0.6 mm. wide, tinted brownish, with a darker (black?) mark on either side. The chief difference from previous skins is that each tubercle has the hair base black,

marking out the positions of the tubercles by obvious black dots. The crochets, instead of pale brown, as before, are now black and conspicuous, 16 on ventral, and 19 on anal prolegs.

In the 4th instar (half grown) the length is 10 mm., the head pale rufous, 0·8 mm. wide, tubercles well marked by black dots, the base of hair and adjacent margin of plate both black, *i. e.*, each margin of the membrane forming the articulation. The anal comb now presents 7 points, the marginal ones small, in this and the previous skin the end of each prong of the comb is seen to be bifid, crochets black, the legs brown, with margins of basal chitinous pieces black.

Dec. 29th.—Most forward larva in last (feeding) instar.

In the 5th instar the larva is much the same as in 4th, tubercles not perhaps so conspicuous, its general appearance and tone depend much on the intestinal contents; the head is about 1·20 mm. wide.

The full grown larva is very like that of some of our common Tortrices, being green, tapering to each end, a little flattened. The skin really colourless, or nearly so, with skin points dark, but a darker or lighter green showing through, according to contents of larva, *i. e.*, amount of fat-bodies, and colour and amount of intestinal contents. The head is very light brown, darker than straw colour, but not black, as Millière says, nor is the plate of prothorax, which is little differentiated in colour from the rest of the larva, the spiracles are hardly visible black circles. Otherwise Millière's description is correct.

Larva, last skin not quite full grown.

Length, 20 mm.—24 mm.

Colour, light bluish-green, with a darker tint on the back down to just below the spiracles, just as if it had a light sepia wash over it, probably due to the minute black skin points.

The lines of folds between the subsegments look dark, where of course the skin points would be massed together. Tapers slightly forwards through the thoracic segments, and more definitely backward from about the fifth abdominal.

Width about 2·5 mm., tapering to 2 mm. at prothorax and 1·5 or 1·9 mm. at head, and about 1·9 mm. at ninth abdominal segment.

Head, very light oak-brown, with a very small dark line laterally not reaching forward to the eyes. Width, 2·0 mm.

Eyes five on a black semicircle.

Ends of jaws deep brown.

There are very indistinct slightly darker markings on the head.

Prothoracic plate green like the rest of the larva.

True legs green, with a few darker markings on articulations along the margins.

Ends of the last joints and the claws brownish.

Subsegmentation. Thorax, 2nd and 3rd, a large central subsegment carrying the tubercles narrowed at the dorsal line, with a spindle-shaped one widest, dorsally, in front and behind this, these end in a point laterally about spiracular level; a very narrow one again in front and behind these.

Abdominal, a very narrow front one, say width equal to 1, then a broad one carrying tubercles 1 and 3, width equal to 7, another, width equal to about 3, carrying tubercle 2, and a posterior one nearly as wide; these widths are only approximate, as they vary much according to the movements of the larva. These all end at the lateral flange below the spiracle. In some attitudes this flange is invisible, in others it stands up almost like a separate roll laid on. Below this again there are various rolls or flanges varying with the attitudes of the larva.

Prolegs have a rather thick base, followed by a short cylinder and ending in a complete circle of hooks, which is a little weaker (almost interrupted) on the outer edge. The hooks are in two rows, or rather in one row with alternate hooks of different sizes, the inner and larger being twice as long as the others, about 22 to 24 in number. On the inner edge where they are strongest they might be described as in three rows or of three sizes, total about 56.

The anal prolegs have only the anterior margin armed with crotchets, in two sizes, 40 crotchets.

The anal comb has five large prongs each ending in a double point; there is one smaller spine at either side, and a very minute one beyond, making really nine. The ends look broken or bifid.

The anal plate is nearly circular and carries four hairs on either side.

The head of the larva is darkest when young, in first skin black to the naked eye, about third skin it is really pale. The approximate width of the head at each instar is—

1st	0·2 mm.
2nd	0·4 mm.
3rd	0·6 mm.
4th	0·8 mm.
5th	1·20 mm.
6th	2·0 mm.

in the 7th or aestivating instar it is just the same, or very triflingly less. It seems the same in all particulars, except in being devoid of chitinous brown colour or nearly so except the jaws; it is remarkable that the jaws are so well developed, as they do nothing but eat the moulted larva skin, leaving the head. It is probably an instar that in nearly related species is still an active feeding one.

It may be observed that some of my larvæ hatched at Reigate, and kept indoors, were already full-fed in the middle of January, nearly three months earlier than they would have been at Hyères. Mr. Powell tells me at this date (January 6th, '05) plants of *Asphodelus* have made hardly any progress in his garden at Hyères.

PUPA.

The pupa is light brown in colour and rather slender. It is much the same as a whole group of pupæ found in the genera *Tortrix*, *Cacæcia* and *Pandemis*, but most resembles those of the latter genus. Other species in *Tortrix* and *Cacæcia*

have a more rounded posterior extremity; in this group the cremaster is a flat pen-like spine with a broad end; in most of these the end is square with the corners rounded; in *H. hyerana* the corners are notched. In the male pupa also the wing and leg tips project beyond the third abdominal segment, and without being attached to fourth, are accommodated in a hollow of that segment, with weaker and thinner integument. The maxillary palpi are carried (on dehiscence) at the external angles of the maxilla, whilst in other of these *Tortrices* they are apt to adhere to the top of the first leg cases. Even in *hyerana* it is difficult to mount the head pieces without breaking them off, so delicate is the portion of chitin that forms their attachment to the maxillæ.

There is no other very definite point I have been able to seize that would make a description of this pupa inapplicable to a considerable number of other species.

The maxillary palpus does I find adhere to the top of the first leg piece on dehiscence in a certain number of pupæ, and to the face or eye-piece in others; so that probably there is similar variation in other species. When it is attached to maxilla it is by delicate films marking the true organic connection; in other attachments it adheres by the proper sutures not having yielded. Before emergence the halves of the proboscis are the merest threads in the wide maxilla cases; still the moths use them readily and efficiently for feeding.

The characters of the larva and pupa not here noticed will be more easily understood from the annexed diagrams than from descriptions.

PLATE VII.

EXPLANATION OF PLATES.

PLATE II.—Plant of *Asphodelus microcarpus*, ends of leaves remain fastened together (on right of plate) by *Tortrix unicolorana*, but plant is practically uninjured.

„ III.—Plants of *A. microcarpus*, of which three, 1, 2, 3 are wrecked by *Hastula hyerana*, 4 (in background) untouched.

„ IV.—Imagines of *Hastula hyerana*; light males at top (*hyerana*), dark males below them (*marginata*, Wlsm.), then light females and dark females. This plate is not so successful as might be desired.

„ V.—Group of eggs of *H. hyerana*, $\times 11$ diams.

„ VI.—Portion of same group, $\times 20$ diams., from Photos by A. E. Tonge, Esq.

„ VII.—1. Sketch (under camera) of tubercles and hairs of larva of *H. hyerana* on prothorax, metathorax, 3rd abdominal, and 7th, 8th, 9th, and 10th abdominal, with anal comb.

2.—Ventral view of pupa, ♂, with enlarged view of cremaster.

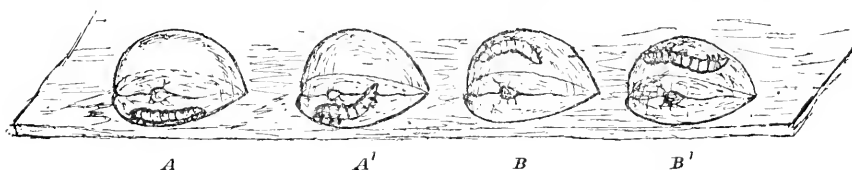
3.—Side view of 5th abdominal segment of pupa.

4.—Pupal parts of head and thorax after dehiscence, showing maxillary palpi attached to maxilla, and eye cover attached to dorsal head piece.

ON THE MOVEMENTS OF THE "JUMPING BEAN."

BY DAVID ROLLO, UNIVERSITY COLLEGE, DUNDEE.

In the bean of *Croton colliguaja* there is often found the larva of *Carpocapsa saltitans*, which by its movement inside produces the peculiar jerking action from which the name "Jumping Bean" is derived. The pale yellow larva is about 10 mm. long and 2 broad, while the bean is about 9 mm. long by 7 mm. high. The contents of the bean have been completely hollowed out, leaving a shell of about 5 mm. thick. The shell weighs .05 gr. and the larva about .025 gr. In addition to the normal six thoracic legs, eight abdominal legs and two claspers, the caterpillar has on the head a brown plate (clypeus) which acts as a protective shield when the larva strikes the bean a blow. By removing one side of a bean and replacing this with a piece of micro-cover-glass, the movements of the animal were observed. On gently warming the bean the larva is seen to creep about in an excited manner. Sometimes it swings its head from one



side to the other, then by raising its body into position A, it delivers repeated blows on the shell. In most positions this would only produce a slight oscillation of the bean; but when the larva causes the bean to jump, it is not at the bottom but fixed to the upper side of the bean, in position B. When its head comes in contact with the shell, the larva is still curved, and the reaction seems to straighten it when it again rears up to deliver more blows. A tap may be heard when it strikes a blow, and the brown plate or clypeus appears to be hard.

I have never seen the larva fixed to the part of the bean next the support and trying to strike the top; nor has it ever jumped more than 3 mm. high and 6 mm. along. The larva appears to desire to remain inside the bean: on removing the glass it was covered with a web and all corners had been closed up.

I have had one for twenty-eight days in a small glass bulb, and although no food has been supplied, it still moves about and tries to cause a jump.

April, 1905.

Gnorimus nobilis, L., at Woolwich.—I was fortunate enough to take three specimens of this rare beetle at Woolwich on May 20th last. They occurred under the bark of an ancient cherry tree which has been dead some years; a number of the larvæ remain in the tree, and consequently I hope to obtain more of the perfect insect another season.—E. C. BEDWELL, Norbiton, Surrey: June 8th, 1905.

Capture of Pselaphus dresdensis, Herbst, near London.—I took one specimen of *Pselaphus dresdensis*, Herbst, from moss at the edge of Wisley Pond, Surrey, on May 30th, 1905. I think this capture so near London worth recording, as in Canon Fowler's "*Coleoptera of the British Islands*" it is said to be very rare, and northern in its distribution.—G. E. BRYANT, Fir Grove, Esher, Surrey: June 7th, 1905.

Further notes on the capture of Amara anthobia, Villa, and the comparative morphology of *A. familiaris*, *A. anthobia*, and *A. lucida*.—It was my intention to add a note to that of Mr. W. E. Sharp in the April number of the Ent. Mo. Mag., in which he announced my capture of *A. anthobia*, Villa, at Leighton Buzzard; but I waited in order to have time to make a careful examination of the beetle, as it appears on this side of the English Channel, comparing it, in as many instances as possible, with the closely allied species, *A. familiaris* and *A. lucida*, and with the continental *A. anthobia*, if the latter were procurable.

Fortunately I have been able to get together a good deal of material for observation. I am indebted to Messrs. G. C. Champion, W. Holland, W. E. Sharp, J. R. le B. Tomlin, and Dr. Chaster, for kindly lending me series of *A. lucida* for examination, also to M. Bedel for twelve fresh examples of *A. anthobia* which he kindly collected for me in the neighbourhood of Paris. Together with this my own efforts in the field produced in a few days a larger number of *A. familiaris* and *A. anthobia* than I anticipated.

On September 2nd, 1904, I turned up with my trowel, at the roots of grass, in a sandy soil, a batch of a small red-legged *Amara*. I was attracted by the small size of some of these (which subsequently proved to be *A. anthobia*), one or two appearing only a little larger than a good sized *A. tibialis*, accordingly I took a few for examination. On consulting Canon Fowler's "*British Coleoptera*," and observing the less projecting anterior angles of the thorax in my specimens, I separated them by this character from the examples of *A. familiaris*, and put them away in my relaxing tin labelled *A. lucida*, as I suppose others have done before. I had not that species in my collection at the time.

The fact of these being inland *lucida*, as I thought, induced me to return two days later to the same spot and take more, both days realizing eighteen specimens. In February, 1905, when overhauling these beetles thoroughly, I observed the pre-scutellary pore, and called Mr. Sharp's attention to this character—foreign to *lucida* and constant in all my specimens, at the same time sending him two examples.

As already stated he most happily thought of the continental *anthobia*, and sent me Putzeys' description of it, which, in my opinion, agreed well with the new *Amara*. At the same time Mr. Holland kindly sending me his series of *A. lucida* to compare, the difference being at once apparent, I labelled my beetle "*A. anthobia*, Villa."

Subsequently hearing from Mr. Sharp that M. Bedel had pronounced it *A. anthobia*, I set to work to collect fresh specimens, both of *A. anthobia* and *A. familiaris* for comparison, and, as no *Geodephaga* were as yet moving in these parts, I resolved to dig for them in the spot in which I had last seen them in the previous autumn. I came upon the two species at once, and my diary shows the following entries of the occurrence of *A. anthobia* with *familiaris*; it also contains other entries of *familiaris* occurring in large numbers without *anthobia*, which I need not record.

	<i>A. anthobia.</i>	<i>A. familiaris.</i>
Sept. 3rd & 5th, 1904.....	18	15
March 20th, 1905	32	65
„ 21st.....	67	42
„ 22nd	71 (within a space of 3 yards square)...	63
„ 23rd	35	32
„ 31st.....	21	30
April 3rd	21	50
„ 15th	2	15
May 5th	2	2
	<hr/> 269	<hr/> 314

All these occurred in one place within 100 yards, and the majority within 30 yards of each other. Besides these I have made three other isolated captures in different directions with some considerable labour of search; the latest of these, May 17th, occurring among 92 *familiaris*.

I note that *A. familiaris* and *A. anthobia* thrive together in the above mentioned spot, far outnumbering other *Amaras* taken with them, including *A. apricaria*, Sturm, *A. consularis*, Duft., *A. similata*, Gyll., *A. tibialis*, Payk., and *A. trivialis*, Gyll. *A. fulva*, De G., and *A. bifrons*, Gyll., which I took close by, did not occur, nor *A. infima*, Duft., which is found a little further off. I have not seen *A. lucida*, Duft., in this neighbourhood at all.

As to any previous occurrence of *A. anthobia* in Britain, it was anticipated from the first, when attention was drawn to its identity, that it would be discovered in British Collections confused with *A. familiaris* and *A. lucida*. This has proved to be the case. I have contributed series to fifteen representative private collections, and in five of these the beetle occurred; also to the collections at the British, Edinburgh and Oxford Museums, which did not contain it. Mr. Holland was the first to find two examples in his collection, one of which, a ♀, he took at Ogley Bog near Oxford, probably on a sandy ridge bordering on the bog. This specimen is labelled "Ogley, June 1.03, *lucida*?" The second, a ♂, labelled "New Forest, May, 02, *lucida*?" was taken by Major Robertson for Mr. Holland. Both beetles Mr. Holland has sent me to see, and the New Forest insect proves of unusual interest as an aberration exhibiting three pores in the scutellary region instead of the normal two, one occurring at the base of the scutellary stria, and another at the base of the sutural stria on the same elytron.

This is the only instance of the kind in 284 examples which I have examined, and, if I add statistics of other *A. anthobia* given me by different British collectors, in 325.

Another isolated capture of *A. anthobia* at Chatham has been recorded by Prof. Hudson Beare (Ent. Mo. Mag., May, 1905). Mr. Willoughby Ellis, of Knowle, Warwickshire, informs me that he has taken the beetle in some numbers, and he sends the following interesting particulars of his captures.

	Specimens.	Date of Capture.
Cannock Chase	1May, 1882.
Hartlepool	1May, 1892.
Hopwas Wood	5April, 1895.
Leighton Buzzard	1March 3, 1898.
Sandown, Isle of Wight .	1May, 1899.
Woburn, Beds.		
(8 miles distant from Leighton) ...	37April 4, 1900.
Knowle, Warwickshire	1June 1, 1903.

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Commander J. J. Walker has also discovered one specimen among his duplicates, labelled "Chatham district," and taken by himself probably in 1898 or 1899, he tells me. This gives eleven isolated occurrences of the beetle at least. The earliest British capture that has come to my notice, if we may assume it to be so, is a beetle in the possession of Mr. Tomlin. I have examined this specimen, and it is undoubtedly *A. anthobia*. It was found in the old British Collection of Sheppard, and written underneath the mount in somewhat faded ink is the date " $\frac{3}{5}3$," i. e., 29 years prior to Mr. Ellis's first capture in 1882. No locality is recorded. The insect came to me with one example of *A. lucida*, of exactly the same date from the same collection.

It will be interesting to see if time will bring to light the record of any earlier British capture of *A. anthobia* than this, and now that the beetle is known to collectors, to what extent it will be taken (*to be continued*).—GEORGE A. CRAWSHAY, Leighton Buzzard: May 19th, 1905.

Acrognathus mandibularis, Gyll., &c., near Woking.—During the past week, a week of very hot, dry weather, I and my boy have captured several specimens of *Acrognathus mandibularis*, Gyll., in this neighbourhood. They were caught on the wing, just before sunset, in a damp, secluded lane, flanked on either side by a nearly dry ditch filled with an accumulation of rotting leaves, from which they appeared to be emerging. *Triarthron märkeli*, Schmidt, *Thalyera sericea*, Sturm, and *Throscus carinifrons*, Bonv., were also taken on the wing at the same place. The locality is a new one for *Acrognathus*, which I had not previously seen alive. It may be noted, however, that Dr. Power once caught an example of it in a similar manner at Claygate Lane, about twelve miles distant, and that *Comptoschilus* and *Deleaster* have both been captured flying in the evening at Horsell or Woking.—G. C. CHAMPION, Horsell, Woking: June 3rd, 1905.

Scymnus lividus, Bold, a synonym of *S. testaceus*, Mots.—By the courtesy of the curator of the Newcastle-on-Tyne Museum, I have been enabled to examine Bold's type of *S. lividus*. There can, I think, be no doubt that it is a small pale

example of *S. testaceus*, Mots., a very variable species in colour and punctuation, and sometimes even in shape. Fowler (Brit. Col., iii, 170, Table), separates *lividus* from *testaceus* by its black claws, but the claws of *testaceus* being black also, this distinction will not serve. Bold (Cat. Northumb. and Durham, 1871, p. 109) gives "sea banks near Hartley" as the locality for *lividus*, and it must be noted that he took *S. mulsanti*, Wat., also "on the sea banks," and presumably at the same place. *S. mulsanti* is now regarded by most authors as a var. of *testaceus*, but it was not so regarded in Bold's time, or he might have suspected the identity of the two insects. *S. mulsanti* has apparently been a puzzle to foreign Coleopterists, having been referred by them in turn to *scutellaris*, Muls., *redtenbacheri*, Muls., and *testaceus*, Mots., nor can its real place be considered as settled even now.—E. A. NEWBERY, 12, Churchill Road, Dartmouth Park, N.W.: May 11th, 1905.

Epuræa longula, Er., and other *Nitidulidæ* in the Derwent Valley.—On September 26th, 1903, I took a strange *Epuræa* from a lingering flower of meadow-sweet (*Spiræa ulmaria*) in Gibside. At Mr. Tomlin's advice it was sent to Mr. Champion, who kindly identified it as ♂ *Epuræa longula*, Er. Mr. Bold took this species at Gosforth, but in consequence of having lost his specimens in the Post Office, he records it as doubtful (?) (Nat. Hist. Trans. of Northumberland and Durham, vol. iv, p. 56, 1871).

Meligethes obscurus, Er. (*distinctus*, Shp. Cat.), another species of our *Nitidulidæ* doubtfully recorded by Bold (Nat. Hist. Trans., p. 57, "*M. distinctus*, Erich., l. c. 203. (?). Rare. Seghill Dene. May."), has occurred at Winlaton and Rowlands Gill, Autumn, 1903 and 1904, my examples of which were kindly named by Mr. Newbery. These captures are interesting as confirmations of Mr. Bold's hitherto doubtful records.

Brachypterus pubescens, Er., *B. urticæ*, F., *Cercus pedicularius*, L., *C. bipustulatus*, Pk., *C. rufilabris*, Lat., *Epuræa æstiva*, L., *E. melina*, Er., *E. deleta*, Er., *E. parvula*, Stm., *E. obsoleta*, F., *E. pusilla*, Ill., *Nitidula bipustulata*, L., *Omosita depressa*, L., *O. colon*, L., *O. discoidea*, F., *Meligethes rufipes*, Gyll., *M. æneus*, F., *M. viridescens*, F., *M. erythropus*, Gyll. (?), *Cyckramus luteus*, F., *C. fungicola*, Heer, *Ips quadriguttata*, F., *Rhizophagus depressus*, F., *R. perforatus*, Er., *R. ferrugineus*, Pk., *R. dispar*, Pk., *R. bipustulatus*, F., and others not yet identified, have occurred in the Derwent Valley of late.

Cercus bipustulatus, local, from cherry blossom at Winlaton Mill, May, 1904; *Epuræa melina*, recorded by Bold as very rare, from meadow-sweet, July, 1902, and hawthorn blossom, June, 1904, Winlaton Mill and Hollinside; *E. parvula* from beneath bark of oak, spring; and by beating oak and bracken, autumn; *Omosita depressa*, Winlaton Mill, June, 1902.

Cyckramus luteus, said to be rare with us, occurs in numbers each summer, on meadow-sweet, hemlock, &c., Winlaton Mill, Hollinside and Gibside, whilst *C. fungicola*—if indeed these be two species—has fallen to me but rarely, although reported as common.

Ips quadriguttata, which Bold records as rare, from beneath bark of oak, bird cherry, &c., was taken at Winlaton Mill in a like habitat, June, 1904, and again in October and November of the same year, from a large hard fungus (*Polyporus*

radiatus) growing on elm in Gibside. *Rhizophagus perforatus*—an addition to our List (Entom. Record, 1904) was taken from beneath the bark of a felled tree at Lockhaugh, September, 1903, and at the same locality early last year. In October, 1904, I came across a very small example of what seems to be this species from the above mentioned fungus, *P. radiatus*.

Of course this short note is not in any sense a complete account of our local *Nitidulidæ*, but rather of a few things that have occurred to me by indiscriminate and haphazard collecting.—RICHARD S. BAGNALL, The Groves, Winton-on-Tyne : January 13th, 1905.

Diptera in Scotland.—I have taken specimens of the following *Diptera* during the past two seasons, and though some of them have been recorded in the "Annals of Scottish Natural History" (by Mr. Grimshaw in his "*Diptera Scotica*"), I venture to send these notes for publication in the "Ent. Mo. Mag.," as records of *Diptera* from Scotland are but few. I am greatly indebted to Mr. Grimshaw for much kind assistance given in the determination of my captures.

I collected at Aberfoyle for three weeks in July, 1903, and had one day's collecting there last year on June 30th. Nearly 140 species have been determined, and I have a great many still to work out. In addition to *Oxycera dives* and *Microdon mutabilis*, already recorded in this Magazine, several other interesting flies occurred. *Therioptectes solstitialis*, Mg., was a common species, and I took *Tabanus sudeticus*, Zlr., ♂, July 7th, 1903, at rest on bracken. *Paragus tibialis*, Flin., occurred at a sandy bank at which I also took the bees *Halictus meathmanellus* and *H. leucopus*, which interested me, as there appears to be some connection between the *Paragus* and *Halicti*, at the same and similar banks *Metopia leucocephala*, Rossi, was in abundance; and July 6th, 1903, I took a ♀ of *M. amabilis*, Mg. I was glad to take a ♂ of *Verrallia aucta*, Flin., June 30th, 1904, my first capture of the species. Both sexes of *Pipizella flavitarsis*, Mg., were rather common in moist places, and *Chrysogaster solstitialis*, Flin., *Syrphus compositarum*, Verr., *S. arcticus*, Ztt., and several fine specimens (both sexes) of *Eristalis rupium*, F., were taken at wild rose. One morning, July 8th, 1903, I found *Chrysotoxum arcuatum*, L., in fair numbers on bracken in wooded places, strangely the only occasion on which I saw the species; *C. bicinctum* also occurred. On July 1st, 1903, I took a fine ♂ of *Cynomyia alpina*, Ztt., this species has now been recorded from several localities in Scotland. Some forty species of *Anthomyidæ* were met with, including *Sphecolyma inanis*, Flin., 2 ♂, July 6th, 1903. *Pegomyia transversa*, Flin., *Homalomyia ærea*, Ztt., and *Caricea means*, Mg., in coitū. *Hyetodesia pallida*, F., was abundant on bracken and low shrubs, especially in the wooded shores of Loch Ard. I do not know if my series (a long one) is all the one species, as the ♂ varies in colour, only about half of those taken being entirely yellow or testaceous as described by Meade, the rest having more or less of the thorax dark grey, and I notice that in most of the dark specimens the eyes are not so closely touching as in the former. All the females taken are entirely light coloured. A small bluish-grey *Limnophora*, which Mr. Grimshaw thinks is *solitaria*, Ztt., was common on the Aberfoyle hills resting on lichen-covered rocks, &c. In these situations it afforded a beautiful example of "sympathetic" coloration. I also met with the species at Callander last September,

evidently a later brood, as they were in fine condition, while a great proportion of them taken in July were ragged. I was also impressed by the colour adaptation exhibited by the Tachinid *Myiocera carinifrons*, Fln., which I found in some numbers, July 8th, 1903, sunning on a larch trunk, there was a great similarity between the colour of the fly and the lichen-covered bark on which they rested. In July, 1903, I was fortunate to take 4 ♂ and 1 ♀ of *Hydrotæa pilipes*, Stein, a species new to the British List, and the ♀ previously unknown; it has been recorded with a description of the ♂ by Mr. Grimshaw in "Annals Scot. Nat. Hist.," July, 1904, page 158. Other species of the genus also occurred, viz., *H. impexa*, Lw., several in 1903, and in numbers, but only in a limited area, June 30th, 1904. *H. similis*, Mde., was very common on bracken, &c., and *H. palæstrica*, Mg., 1 ♂, June 30th, 1904. Though Mr. Verrall gives *similis*, Mde., as a synonym of *palæstrica*, they appear to be distinct.

At Musselburgh *Merodon equestris*, F., was taken in my garden, while *Chrysogaster splendens*, Mg., *Gymnocheæta viridis*, Fln. (sunning on trees), *Mychophaga fungorum*, Deg. (on paling), *Homalomyia manicata*, Mg. (*in coitû*), *H. incisurata*, Ztt., *H. monilis*, Hal., and *Cœlomyia mollissima*, Hal., all occurred along the banks of the Esk. *Hydrotæa occulta*, Mg., and *H. armipes*, F., were both common on bramble leaves. On June 30th, 1904, I took a ♂ of *Hylemyia præpotens*, W., a fine species.

At Aberlady I took, in June, *Dolichopus clavipes*, Hal. (one of the few localities given by Mr. Verrall for this species), and at Callander in September, *Arctophila mussitans*, F., *Rhamphomyia spinipes*, Fln., and *Liancalus virens*, Scop. The last was in some numbers on the sides of a bridge over a stream near Loch Vennacher, and I was greatly interested in watching the antics of the ♂, as it raised itself on its long legs, lowered its wings, each with a silvery spot at the tip, and displayed itself before the ♀ in much the same way as do certain spiders.—A. E. J. CARTER, 4, West Holmes Gardens, Musselburgh, N.B.: April 4th, 1905.

Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: April 10th, 1905.—Mr. G. T. BETHUNE-BAKER, President, in the Chair.

Mr. E. C. Rossiter was elected a Member of the Society.

Mr. J. T. Fountain gave an account of some winter collecting he had had recently, and said that he thought Entomologists ceased work too soon in the year and began again too late. On December 2nd he saw at Sutton more moths than he had ever seen before, chiefly *Cheimatobia brumata*, L., but also including *Scopelosoma satellitia*, L., and *Orrhodia vaccinii*, L. On March 4th he sugared at Chelmsley Woods and the two last named species came in numbers. Mr. W. E. Collinge showed *Collembola*; *Sminthurus malmgreni*, Tulbb., a species new to Britain from Knowle, and *Lipura ambulosa*, L., from Solihull, where it occurred in thousands, in connection with some cauliflowers suffering from "finger and toe"

disease. Mr. Gilbert Smith gave an account of the Coleopterous genera *Criocephalus* and *Aseum*, illustrating his paper with some excellent drawings and specimens of the beetles in all stages.

May 15th, 1905.—The President in the Chair.

Mr. A. H. Martineau exhibited a specimen of the rare saw-fly, *Schizocera furcata*, ♀, taken by Mr. C. J. Wainwright in Wyre Forest on May 26th, 1890; it had been named for him by the Rev. F. D. Morice, who told him that only two specimens had previously been known from the British Isles; he also showed a specimen of *Tenthredo livida*, ♂, which had only one antenna with the normal white tip to it, the other being quite black; likewise various other *Hymenoptera*, chiefly Exotic *Aculeata*. Mr. J. T. Fountain, a series of *Biston hirtaria*, Cl., bred from ova received from Yorkshire; he said that the females were decidedly later than the males in emerging, about ten days on the average; he also showed a beautiful series of *Dianthæia albimacula*, Bkh., from a locality he was not at liberty to mention. Mr. G. T. Bethune-Baker, a collection of butterflies of the Australian Lycænid genus *Ogyris*, which he had just described in a paper communicated to the Entomological Society of London; he gave a very interesting account of their peculiar habits and life-histories as far as known, chiefly dealing with their remarkable association with ants.—COLBRAN J. WAINWRIGHT, *Hon. Secretary*.

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY: *March 20th.*—Mr. RICHARD WILDING, Vice-President, in the Chair.

The Third Ordinary Meeting was held in the Society's Rooms, Royal Institution, Liverpool.

Donations to the Library were announced from Messrs. B. H. Crabtree, F.E.S. H. B. Score, F.R.G.S., Jas. Fletcher, LL.D., F.L.S., and C. M. Adams, F.I.C.

This meeting took the form of a Microscopical, Lantern, and General Exhibitional meeting, and proved to be a most popular and successful innovation. Mr. J. M. Williams' slides included the suckers of *Dytiscus* and the head of the Jumping Spider, *Salticus tardigradus*. Mr. Garnett showed the Fairy Fly, *Anagrus incarnatus* and the Hessian Fly. Mr. F. N. Pierce, the Chirping Drum and File of the common House Cricket. Mr. D. Whittaker, the strigil of *Corixa geoffroyi* and other slides of aquatic *Hemiptera*. Mr. J. E. Turner, head of plumed gnat, and Ichneumon flies. Mr. E. J. B. Sopp, larva of *Melœ proscarabæus* and spiracles of *Dytiscus marginalis*. The President, Mr. S. J. Capper, sent his well-known educational collections representing all the orders of Insects. Mr. W. A. Tyerman, a series of bred *Selenia illunaria*, and some beautiful moths from Winburg, Orange River Colony. Mr. F. R. Dixon-Nuttall, specimens of the North American Longicorn, *Neoclytus erythrocephalus*, found seven inches below the bark of an ash supposed to have grown in the St. Helen's District. Dr. W. Bell, preserved larva of *Noctua triangulum*. Mr. Horton, larvæ of *Trochilium bembeciforme*, in willow stems. Mr. J. R. le B. Tomlin, a case of exotic *Cetoniidæ*, and one of Goliath beetles, including *Goliathus druryi*, *G. giganteus* and *G. cacicus*. Mr.

R. S. Bagnall, *Leptura pubescens*, *Sinorylon anale*, *Chrysobothris chrysostigma*, and a number of other foreign beetles introduced into the Hartlepool District in timber. Mr. Sopp, British burying beetles, borings of *Hylesinus fraxini* in ash, and locusts. Mrs. Sopp, the leaf insect, *Phyllium scythe*. Mr. Pierce, a large wasp, probably *Vespa mandarina*, captured by Mr. Wm. Johnson in the district about sixty years ago. Among the photographs of insects shown by the lantern, one of *Helops striatus* showing a bifurcated antenna, exhibited by Mr. Harrison, was especially interesting.—E. J. B. SOPP and J. R. LE TOMLIN, *Hon. Secretaries*.

Monday, April 17th, 1905.—MR. RICHARD WILDING, Vice-President, in the Chair.

The Fourth Ordinary Meeting of the Session was held in the Royal Institution, Liverpool.

Drs. Wm. Bell, J.P., of Rutland House, New Brighton, and P. F. Tinne, of Mostyn, Aigburth, were elected Members of the Society.

A paper was read by Dr. Geo. E. J. Crallan, M.A., F.S.A., on "The Life History of *Ophiodes (Pseudophia) lunaris*," illustrated with coloured figures by the author, including the egg in three stages (actual size and magnified 32 diameters), larva in six stages, imago, upper and under-side of both sexes, &c., &c. Dr. Crallan referred to the fact that this is the only species of the genus that has been taken in Britain, the first specimen having been taken in Hampshire in 1832, and several having occurred since. In Spain it is said to be common in the cork woods, and in Austria occurs amongst oaks. In confinement the moth appears from April to June from eggs laid on oak or poplar. When laid the egg is of a beautiful green, but after a week the colour changes to red or plum colour, and still later to drab. The changes in colour and appearance of the larva at the different ecdyses were described, and much interesting information given on habits throughout the life of the insect in all its stages. Among exhibits were a box of insects from Trinidad, by Miss Birch, on behalf of her brother; eggs of *Tæniocampa opima* on hawkweed by Mr. H. B. Prince, and on yarrow by Mr. Mallinson, who also showed larvæ of *Leucania littoralis*; *Plusia moneta* (bred) and *Lycæna arion* from South Devon, by Mr. Pierce, and a hibernating queen wasp by Mr. Score.—E. J. B. SOPP and W. D. HARRISON, *Hon. Secretaries*.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY:
Thursday, May 11th, 1905.—MR. HUGH MAIN, B.Sc., F.E.S., President, in the Chair.

Mr. Bevins, of Ongar, Essex, was elected a Member.

Mr. Sich exhibited the flowering spike of an *Asphodel* grown in his garden at Chiswick. It originally came from the west of France, but Dr. Chapman said it was not the same species which formed the pabulum of *Hastula hyerana* in the Esterels. Dr. Chapman, a short series of a moth, *Metoptria monogramma*, Hub., allied

to *Euclidia glyphica*. They were taken in Sicily at the end of April. Mr. Main, enormous larvæ in spirits from the West Coast of Africa, probably of some large species of Longicorn. Mr. Gilbert J. Arrow, various species of *Coleoptera* to illustrate an address which he afterwards gave, entitled, "Some Social Beetles." A discussion took place as to the use of sound apparatus in larvæ, the suggestion being that they were more or less directly protective.

Thursday, May 25th, 1905.—The President in the Chair.

Messrs. Harrison and Main, a large number of species of *Lepidoptera* captured or bred this season, comparing those from South of England localities with those from the neighbourhood of Liverpool. Mr. Carr, series of spring *Lepidoptera* from the New Forest. Mr. Joy, a short bred series of *Thecla rubi*, from Folkestone, the larvæ of which fed on dogwood which had led him to think they were *Cyaniris argiolus*. Mr. Hy. J. Turner, a short series of *Cucullia lychnitis* bred from larvæ taken at Box Hill in June, 1904. The larvæ were fed up in the hottest sun in a conservatory and grew extremely fast. When found they were studded with ova of ichneumons, but after considerable trouble they were successfully removed. He also showed larvæ of *Leioptilus septodactylus* (*lienigianus*) a local plume moth, feeding on *Artemisia vulgaris*. They were found at Croydon feeding in the open. Dr. Chapman, a series of *Depressaria thapsiella* bred by him from larvæ obtained in Sicily, where it fed in countless numbers on *Thapsia gargania*. Mr. Sich, larvæ and pupæ of *Wheeleria spilodactyla* from the Isle of Wight, feeding on *Marrubium vulgare*. Mr. Wright, a larva of a large Coleopteron, feeding in the wood of a sugar box from the West Indies.—HY. J. TURNER, Hon. Secretary.

LIST OF BRITISH DOLICHOPODIDÆ, WITH TABLES AND NOTES

BY G. H. VERRALL, F.E.S.

(Continued from page 112).

22. XIPHIANDRIUM Lw.

- 1 (12) Frons glossed with blue; coxæ (at least posterior) with black bristles.
- 2 (3) Coxæ all yellow; abdomen with yellow coloration; coxal bristles about 3 : 2 : 1 1. *fasciatum* Meig.
- 3 (2) Posterior coxæ blackish-grey; abdomen without yellow coloration.
- 4 (9) Hind femora with a preapical bristle.
- 5 (6) Outer lamellæ ending in a single long hair; coxal bristles 0 : 1 or 2 : 1...
2. *monotrichum* Lw.
- 6 (5) Outer lamellæ without any single long terminal hair; coxal bristles 3 or 4 : 1 or 2 : 1.

- 7 (8) Outer lamellæ elongate lancet-shaped, with long (in some lights) pale pubescence ; antennæ long3. *auctum* Lw.
- 8 (7) Outer lamellæ broad lancet-shaped, with short black pubescence ; antennæ comparatively short4. *lanceolatum* Lw.
- 9 (4) Hind femora without a preapical bristle.
- 10 (11) Inner lamellæ ending in a long, simple, curved, pale hair...
5. *caliginosum* Meig.
- 11 (10) Inner lamellæ ending in a long, compressed, slightly curved thread, which breaks into a ciliation at its tip6. *appendiculatum* Zett.
- 12 (1) Frons glossed with white ; coxæ without any black bristles ; hind femora with a preapical spine.
- 13 (14) Front tibiæ with a spine and a tiny ciliation beneath, the spine being just below the middle and rather turned back ; outer lamellæ short...
7. *brevicorne* Curt.
- 14 (13) Front tibiæ almost bare beneath, and, at any rate, with no distinct spine ; outer lamellæ long, hairy, and dilated at base8. *fissum* Lw.

Several more species should occur in Britain. A small species occurs in Norfolk amber.

1. *X. fasciatum* Meig.: very distinct in the male, because of its yellow abdominal markings. Not uncommon at Tongue (on the North Sea) in June, 1886, and Col. Yerbury took it at The Mound in Sutherland in June, 1904.
2. *X. monotrichum* Lw.: occurring from the New Forest to Tongue, but apparently more common in the North than in the South.
3. *X. auctum* Lw.: I first recorded this as British from a male taken near Lyndhurst on June 23rd, 1873, and I think a male taken by Col. Yerbury at Ledbury in Herefordshire on July 12th, 1902, is the same species. The specimens are quite distinct from the other seven British species, but their positive identification with Loew's species must await further proof, because I can find no reference to the male since Loew described the species in 1857 from Germany, and in his description he says nothing about the coxal or preapical bristles and only imperfectly describes the lamellæ ; my chief doubt is caused by the arista in the British specimens being less than one-third the length of the third antennal joint.

4. *X. lanceolatum* Lw.: this species is now recorded as British for the first time, and I have very little doubt about its identification, even though only one record has been made since its description by Loew in 1850 from Germany. The arista is half as long as the comparatively moderately long third antennal joint; the outer lamellæ are much shorter than in *X. auctum* as well as being much broader at the base. Col. Yerbury took four males and one female at The Mound in Sutherland between June 17th and 24th, 1904.
5. *X. caliginosum* Meig.: apparently common as a Southern species as my numerous localities lie in Hampshire, Sussex, Kent, and Surrey, though I have taken it in Essex and Cambridgeshire even up to Wisbech which is in extreme North Cambs.
6. *X. appendiculatum* Zett.: very common from Penzance to Arran and Logie near Forres.
7. *X. brevicorne* Curt.: apparently rare but widely distributed as my localities are Penzance, Bournemouth, Arran, and Muchalls near Aberdeen.
8. *X. fissum* Lw.: apparently a Northern species as my localities after Dovedale and Millersdale are all in the Scotch Highlands and extend even up to Tongue.

23. *SYSTEMUS* Lw.

- 1 (4) Cubital and discal veins strongly approximating before the tip.
- 2 (3) Tip of the wing with a conspicuous black spot1. *Scholtzii* Lw.
- 3 (2) Tip of the wing uncoloured2. *adpropinquans* Lw.
- 4 (1) Cubital and discal veins almost parallel3. *bipartitus* Lw.

There are five known European species of this genus, all of which were described by Loew from Germany, and all of which may well occur in Britain. I introduced one in the list of species at the commencement of this paper, and I now introduce two more, while I think I have seen one or both of the others, but the material is at present unsatisfactory. It is evident that the species live on the ulcerative sap from trees, and Mr. F. Jenkinson and Dr. D. Sharp caught two of the species I introduce at the sap of an elm (*Ulmus*) at Cambridge, from which they bred *S. adpropinquans*, while *S. Scholtzii* was bred this year from a beech (*Fagus*) fungus.

1. *S. Scholtzii* Lw.: Dr. D. Sharp has just sent me a beautiful male

of this very distinct species, which was bred by him on May 8th, 1905, from a beech (*Fagus*) fungus found in the New Forest. It is, I believe, the third known specimen, the first having been bred by Scholtz in June, 1849, from the exuding sap of a birch tree in Silesia, while the second specimen was recorded by Loew in 1859 as occurring in Von Heyden's collection from the neighbourhood of Frankfurt on the Main. The female is still unknown, and may be very distinct from the male, as the black spot at the wing tip is almost certainly sexual, but it ought to have very pale antennæ and coxæ. Schiner's description contains two gross errors.

2. *S. adpropinquans* Lw.: Mr. F. Jenkinson first took this species at elm sap in his own garden at Cambridge on July 22nd, 1901, and then two more females in 1902, from one of which I recognised the species, though it was not easy to do so from only a female of a genus new to Britain; in 1903 he caught another female, besides breeding four males and one female from an elm tree at Aldenham, Herts, and in 1904 he bred a considerable number of females from the same sap. Laboulbene had previously bred it from elm sap near Sevres, and had given full details in *Annales de la Société Entomologique de France* for 1873. The species varies very much in size, and in the reddish-orange colour about the base of the antennæ, which is sometimes almost absent; but it and *S. Scholtzii* are the only ones of the five species which have the cubital and discal veins strongly approximating.
3. *S. bipartitus* Lw.: I have come to the conclusion that four females taken by Mr. F. Jenkinson at sap (one on Elm) at Cambridge from July 10th to August 4th, 1904, must belong to this species. It is again a difficult matter to recognise it from the female only, but it is easily distinguished from *S. adpropinquans* and *S. Scholtzii* by the much more parallel cubital and discal veins and by its entirely black antennæ, and by the latter character from *S. tener*; one of Mr. Jenkinson's specimens (July 10th) has a black ring before the tip of the hind femora, which makes me think it is more likely to be *S. bipartitus* than *S. leucurus*. The female of *S. bipartitus* has not been previously recognised and therefore the positive identification of this species must await the capture of a male.

24. *SYNTORMON* Lw.

- 1 (4) Tip of middle tarsi dilated.
 - 2 (3) Coxæ all yellow ; arista subdorsal ; basal joint of hind tarsi with two bristles beneath ; tips of middle tarsi and hind tibiæ conspicuously dilated.....1. *tarsatus* Fall.
 - 3 (2) Coxæ grey ; basal joint of hind tarsi with one curved thorn beneath ; tip of middle tarsi inconspicuously and of hind tibiæ not at all dilated...
2. *monilis* Walk.
 - 4 (1) Tip of middle tarsi not dilated.
 - 5 (6) Anterior femora with three bristles beneath near base ; squamæ with dark fringes ; basal joint of hind tarsi unarmed beneath...
3. *pumilus* Meig.
 - 6 (5) Anterior femora without any bristles beneath ; squamæ pale haired.
 - 7 (8) Hind tibiæ not ciliated, nor dilated towards tip ; middle femora with two rows of about twelve minute bristles beneath ; basal joint of hind tarsi with two small curved spines beneath near base...
4. *denticulatus* Zett.
 - 8 (7) Hind tibiæ conspicuously ciliated or dilated towards tip ; (if ciliation indistinct) middle femora without rows of minute bristles beneath.
 - 9 (10) Femora almost all black ; basal joint of front tarsi with a short blunt prolongation at tip ; basal joint of hind tarsi armed with a bristly process beneath close to base5. *Zelleri* Lw.
 - 10 (9) Femora all yellow, unless about tip of hind pair ; basal joint of front tarsi simple.
 - 11 (12) Basal joint of hind tarsi with one curved bifid thorn beneath near base ; hind tibiæ scarcely dilated ; abdomen often yellow about base...
6. *pallipes* Fabr.
 - 12 (11) Basal joint of hind tarsi with two long bristly hairs beneath ; hind tibiæ blackened, dilated, flattened, and channelled7. *sulcipes* Meig.
1. *S. tarsatus* Fall. : a very distinct pretty species. Common in the Highlands of Scotland and also in the Lake District.
 2. *S. monilis* Walk. : either uncommon or overlooked. I have taken it in Hampshire, Sussex, Norfolk, and Cumberland.
 3. *S. pumilus* Meig. : occurring, though not commonly, from the New Forest to Sutherland.
 4. *S. denticulatus* Zett. : more commonly known under the varietal name of *S. biseriatus* Lw. I have taken the yellow legged form (= *biseriatus*) in Devonshire, Hampshire, Sussex, and Suffolk, while Col. Yerbury has taken it at Porthcawl in Glamorgan. Col. Yerbury took some specimens with dark brown legs (= *denticulatus*) in Ireland in company with *Clinocera bistigma* Curt. Mr. F. Jenkinson took a male at

Cambridge on October 16th, 1902, and a female on October 29th, 1901, which are unsatisfactory; they have the legs very much blackened, and the male has the spines beneath the middle femora fewer and shorter; perhaps the remarkable time of the year may indicate a seasonal variety.

5. *S. Zelleri* Lw.: I caught a male at Inveran on July 12th, 1886; Dr. Sharp captured one in the New Forest in June, 1902; Col. Yerbury caught one at Golspie on June 22nd, 1904, and another at Nethy Bridge on July 27th, 1904. Those are the only males I have seen, but Loew named as this species one of two females taken at Landport near Lewes on October 16th, 1867.
6. *S. pallipes* Fabr.: very common all over Britain, but very variable in the colour of the hind legs and in the presence or absence of pale coloration about the base of the abdomen.
7. *S. sulcipes* Meig.: a very conspicuously distinct species. Common in the Lake District, Arran, Rannoch, and Braemar, while Col. Yerbury caught a male at Barmouth.

25. *ACHALCUS* Lw.

- 1 (2) Thorax cinereous1. *cinereus* Walk.
 - 2 (1) Thorax ferruginous2. *flavicollis* Meig.
1. *A. cinereus* Walk.: according to Raddatz this occurs in winter amongst the dry stems of reeds, and I find that the only satisfactory specimens which I possess were two females caught at Chippenham Fen on March 27th and April 3rd, 1893, and one female at the "Reed Pond" near Lewes on May 12th, 1875. The species probably only requires to be sought for in February in places where *Arundo phragmites* exists in the form of dead stalks and leaves. I caught a male which may belong to this species at Thetford on June 17th, 1880, but I do not give its identification with any confidence.
 2. *A. flavicollis* Meig.: Walker says "Rare. (E.I.)," and my supposed specimens are most unsatisfactory. I may have caught it at Fawley in Hampshire and at Three Bridges in Sussex, and possibly at Ullswater, but more and better specimens are wanted for certain identification.

(To be continued).

ON THE TERMINOLOGY OF THE LEG-BRISTLES OF *DIPTERA*.

BY PERCY H. GRIMSHAW, F.E.S.

For some little time I have felt the necessity for a definite system of names for the bristles on the legs of flies, and this need became more pronounced when a few months ago I commenced to prepare descriptions of the British species of *Hydrotæa*, a task which, I am happy to say, is now nearly completed. Upon comparing the descriptions of various authors it will be found that there does not exist at present any uniform nomenclature for the bristles and hairs which are attached to the various surfaces, and in some cases the terms used are somewhat ambiguous, and, certainly to my mind, unsatisfactory. In certain Families of *Diptera*, such as for example the *Anthomyiidae*, these bristles are remarkably constant in arrangement, and in many cases, especially where the female sex is concerned, offer the safest, and sometimes almost the only, characters by which a species may be recognised. It therefore seems to me highly desirable that some uniform system should be adopted whereby the chaetotaxy and pubescence of the legs may be described, so that the rows of bristles or even individual hairs may be at once recognised and differentiated.

In order to emphasize the want of uniformity above alluded to, I quote a few examples, and in doing so must explain, that I do not bring them forward in any spirit of carping criticism, but merely for the purpose I have stated, and to serve as my apology for introducing the system of names which follows. (1). STEIN, in his valuable paper on the European species of *Hydrotæa* (Verh. zool.-bot. Ges. Wien, 1903, pp. 285-337) says, in his Latin diagnosis of *H. similis*, "tibiis posticis intus in latere a corpore averso 5-6 setis instructis," and further, in his German description, says "Die Hinterschienen sind aussen abgewandt mit kurzen Börstchen bewimpert . . . innen abgewandt sind sie fast der ganzen Länge nach mit kräftigen Borsten versehen." (2). MEADE, in describing the same species (Ent. Mo. Mag., vol. xxiii, p. 251) says "the hind tibiæ . . . differ from those of *H. dentipes* by having a group of strong bristles in the middle of their anterior or under surfaces." (3). The same author, in his paper on the British species of *Sarcophaga* (Ent. Mo. Mag., vol. xii, 1875-6) speaks of the beard on the *inner* side of the hind tibiæ of the male. (4). HOUGH, in his description of a new species of *Paracompsomyia* (Proc. Acad. Nat. Sci. Philadelphia, 1898, p. 186) describes the bristles of the tibiæ as follows:—"anterior tibia has on

the mesal surface in the extensor row three prominent bristles . . . and on the lateral surface in the flexor row one . . . ; middle tibia has on the anterior surface one . . . on the posterior surface three . . . and on the flexor surface one . . . ; hind tibia has on the lateral surface in the flexor row two . . . and on the mesal surface in the extensor row one." (5). SCHNABL, who has paid considerable attention to the chaetotaxy in *Aricia* (Cont. à la Faune Diptérologique, St. Petersburg, 1887) devotes more than five pages to the description of the legs and their bristles, and in his account of *A. perdita* (p. 400) thus describes the posterior tibiæ:—"Soies *externo-antérieures* 3, dont 1 au dessus, la 2^e au milieu; soies *externo-postérieures* 2 grandes, dont 1 au dessus du milieu, l'autre au dessous de cette dernière; une rangée de soies *interno-médianes* sur le $\frac{1}{2}$ médian du tibia composée de soies peu longues et rarement disposées; au bord postérieur un éperon court, un peu plus long que les s. *externo-postérieures*, dans le $\frac{5}{6}$ inférieurs du tibia." Lastly (6) VERRALL, in describing *Dolichopus laticola* (Ent. Mo. Mag., 1904, p. 198) says:—"Middle tibiæ with three bristles above towards behind and three others alternating lower down above towards front, also one bristle beneath below the middle."

In the first place I would suggest the use of the four simple terms *anterior*, *posterior*, *dorsal*, and *ventral*, whose meaning is sufficiently obvious, and which moreover are capable of easy combination with each other. Being of Latin origin they can be used in a *diagnosis* given in that language with facility, and the only point which can offer any difficulty is that of exactly defining their application. Now, if the leg of a fly be stretched out to the utmost, so that the tarsus and tibia are as nearly as possible in a line with the femur and the whole leg horizontal, then all the surfaces which face upwards I call *dorsal*, those facing downwards *ventral*, those facing towards the head *anterior*, and those facing in the opposite direction *posterior*. A surface *between* any of the foregoing may be denoted by a combination of the two concerned, and thus we get the terms *antero-dorsal*, *postero-ventral*, and so on. Thus a series of eight surfaces of attachment may be easily differentiated, and these are, I believe, quite sufficient for all practical purposes. Taking them in order, and working round in the same direction as the hands of a watch we get the following succession, commencing at the top:—*dorsal*, *antero-dorsal*, *anterior*, *antero-ventral*, *ventral*, *postero-ventral*, *posterior*, and *postero-dorsal*. If the leg of a specimen happens to be bent, then the *ventral* surfaces of the femur and tibia are those which would come into opposition

if the leg were entirely closed. *Whatever the angle made by the tibia with the femur, i. e.,* in whatever position the leg be set, the dorsal surface can always be readily ascertained by turning the fly round until these two portions of the leg appear to be in an exact line with each other, in which case the outside of the angle will be dorsal. This surface once ascertained, the remainder can be found without further difficulty.

When there is a row of bristles or hairs extending from the base to the apex, *i. e.,* along the whole length, of any segment (= joint) the term *complete* may be used. Individual bristles or groups of bristles can be localized according to their distance from the apex or base of the segment in question. Thus we may have a "subapical dorsal" bristle, a "ventral bristle at one-third from base," a "median antero-dorsal" bristle, a "post-median postero-ventral tuft of hairs," and so on. By *median* is meant half-way between base and apex, *post-median* a little nearer the apex than the base, *ante-median* a little nearer the base than the apex.

To illustrate the method here advocated for dealing with this branch of descriptive work in *Diptera*, I conclude with a description of the chaetotaxy of the legs in the common blue-bottle, *Calliphora erythrocephala*, Mg. Of course, certain of these bristles are of *generic* rather than *specific* value, and therefore in a Monograph should be dealt with in the generic diagnosis and not mentioned in the specific descriptions. The full details are given here so as to employ as many terms as possible in illustration of my scheme.

CALLIPHORA ERYTHROCEPHALA, Mg.

FRONT LEGS.—*Femora* with complete rows of long dorsal, postero-dorsal and postero-ventral bristles, several rows of long and fine posterior hairs, a row of somewhat shorter fine ventral hairs in basal half, and anterior surface covered with short fine pubescence. *Tibiae* with the following subapical bristles: 1 dorsal, 1 postero-dorsal, 1 (rarely 2) posterior and 1 postero-ventral; a complete row of very short, semi-erect, equidistant dorsal bristles, and a single long and conspicuous postero-ventral bristle at one-third from apex; posterior and postero-ventral surfaces fringed throughout with short, regular and rather strong pubescence.

MIDDLE LEGS.—*Femora* with a group of about three subapical postero-dorsal bristles, a single strong anterior median bristle with some shorter and less conspicuous ones in basal half, a row of five or six long and stout antero-ventral bristles in basal half, a row of still longer postero-ventral bristles in basal two-thirds, with which are mingled some long fine hairs, ventral surface and apical portions of antero-ventral and postero-ventral surfaces with moderately long, fine hairs. *Tibiae* with a whorl of 6-8 subapical bristles, of which those on the antero-dorsal and ventral

surfaces are the longest and stoutest ; 2 stout antero-dorsal bristles in median third, 2 rather smaller postero-dorsal bristles opposite the latter, 1 posterior bristle at one-third from apex, and 1 strong and conspicuous ventral bristle at one-third from apex.

HIND LEGS.—*Femora* with a single subapical dorsal bristle, a complete row of antero-dorsal bristles, several rows of fine anterior hairs, a complete row of strong antero-ventral bristles, becoming mingled with long, fine hairs towards the base, a similar row of ventral bristles which, however, only extend along the basal half, and a few fine postero-ventral hairs near the base. *Tibiae* with a whorl of about 6 subapical bristles, of which the strongest are those on the dorsal and antero-dorsal surfaces ; a complete irregular row of antero-dorsal bristles, among which two (sometimes three) in the median third usually stand out stronger and more conspicuous ; two postero-dorsal bristles at one-third and two-thirds from the base respectively, sometimes a third (median) also present ; ventral surface bare.

Edinburgh : April, 1905.

THE EUROPEAN SPECIES OF THE GENUS *TRIPLAX*, WITH SOME NOTES ON THE SPECIES WHICH OCCUR IN GREAT BRITAIN, AND A TABLE OF THEIR DISTINCTIVE CHARACTERS.

BY PROF. T. HUDSON BEARE, B.Sc., F.R.S.E.

During the past few weeks, in my endeavours to settle the synonymy of the new species of this genus introduced into our fauna by Mr. Bagnall, I have been consulting most of the literature on the genus *Triplax*, and it occurred to me that there were interesting points to which the attention of our present-day Coleopterists might be drawn. Marsham in his Ent. Brit. (1802), p. 121, described four species as occurring in this country, *russica*, *bicolor*, *flava*, and *castanea* ; the last three were then described for the first time, but the first of these three we now know to have been *ænea*, Schal., the last of them was only an immature variety of *russica*, and about the second I can say nothing, as I have failed to identify it. Stephens in his "Manual of British Coleoptera" (1839), p. 133, in addition to *russica*, *ænea*, and *bicolor*, introduced *rufipes*, F., and *ruficollis*, Steph. Mr. G. R. Waterhouse in his Catalogue (1861) corrected the mistake of Stephens in regard to *bicolor*, and thus introduced for the first time *ruficollis*, Lac. = *lucordairei*, Crotch ; he, however, retained the last two species of Stephens' list, though correcting their synonymy, and identified *ruficollis* of Stephens as *nigriceps* of Lacordaire. Mr. Crotch again drew attention to these two doubtful species of Stephens in his notes on the genus (The Entomologist, vol. v, p. 7), but from that date onwards *ruficollis*, Steph. (now identified as

melanocephala, Lat.), and *rufipes*, F., have disappeared from our list. I am informed, however, by Mr. C. O. Waterhouse, who very kindly carefully examined the species of *Triplax* in the Stephens collection at the British Museum, that there are two undoubted specimens of *rufipes* F., one with the label Windsor; it is quite a distinct insect, as Mr. Waterhouse says, more approaching *Cyrtotriplax* in form; of *ruficollis* there is one undoubted specimen, without locality, but said to have been taken near Windsor.

In view of the fact that the species of this genus are excessively local, though when found they often occur in great numbers, and that Mr. Bagnall has just discovered a species, new to our list, in great abundance in a locality worked for many years by that well-known collector, Mr. Bold, I have every hope that we may yet see the other two doubtful species of Stephens restored to our list. It seems desirable, therefore, to give a simple table for separating the European species likely to occur in Great Britain.

In his "Monograph on the Erotylidæ" (1842), Lacordaire described eleven European species, and Bedel in his "Monograph" [l'Abeille, vol. v (1868-69), p. 1], also described eleven species, but he sank two of Lacordaire's species into varieties, namely, *scutellaris*, Charp., as a var. of *bicolor*, Gyll., and *clavata*, Lac., as a var. of *rufipes*, Fabr.; in addition he added two new species to Lacordaire's list, and made a few changes in synonymy.

In the European Catalogue, H.R.W., 1891, the genus contains fourteen species; one of Bedel's species, *cyanescens*, Bedel, is sunk as a synonym of *marseuli*, Bedel, and there are in addition four new species not mentioned by Bedel. I propose to confine my table to those species of the European list which might be expected, from their distribution on the Continent, to occur in Great Britain.

I. Subgenus TRIPLAX.

Base of thorax strongly bordered, or furnished with a strongly marked furrow before the scutellum, body more or less parallel-sided.

A. Head black.

- (1) *melanocephala*, Lat., = *ruficollis*, Steph.

Easily distinguished by the fact that the antennæ are pitchy-red, with the intermediate joints very close, moniliform, sub-equal, and that the scutellum is black.

(Occurs in Western Germany, France, Italy, and Spain, and was said by Stephens to have been taken near Windsor).

B. *Head red.*

- (a) Under-side of the body entirely yellowish-red.

(2) *venea*, Schal.

Easily distinguished by the bluish-green colour of the elytra, and the red scutellum.

(Very local, and usually rare, in Great Britain ; occurs in Northern and Central Europe).

- (b) The breast beneath black, the abdomen yellowish-red.

(3) *russica*, L.

The scutellum of this species is black, and the antennæ blackish or brownish, with a black club.

(It is generally distributed throughout Great Britain, but usually very local and not common).

- (e) The breast beneath and the abdomen black, but the apex of the latter sometimes reddish.

(4) *lacordairei*, Crotch.

This species resembles *russica*, but is only about half the size, and it is more parallel in shape. It is easily distinguished by its black abdomen.

(Very rare : in this country only so far found in the London district).

II. Subgenus PLATICHNA, Thoms.

Base of the thorax throughout very finely bordered, and never provided with a transverse furrow, shape more or less ovate.

A. *Head red.*

- (a) The whole of the under-side of the body yellowish-red.

(5) *bicolor*, Gyll.

The scutellum and the basal joints of the antennæ are red.

(This is the species recently taken in numbers by Mr. Bagnall at Gibside, Durham. On the continent it occurs in the northern and central districts).

- (b) The breast beneath and the abdomen black, the latter reddish at the apex.

(6) *rufipes*, Fabr.

The short ovate form of this species will at once distinguish it ; the scutellum is black.

(It occurs all over North and Central Europe, and Stephens apparently took it at Windsor. Thomson records it as occurring all over Scandinavia).

The other European species are *marseuli*, Bedel ; *emgei*, Reitt. ; *elongata*, Lac. ; *lepida*, Fald. ; *tergestana*, Reitt. ; *carpathica*, Reitt. ; *pygmaea*, Kr. ; *collaris*, Schal. Most of them occur in the eastern or eastern central parts of Europe, or in South Europe, and can hardly be expected, therefore, to occur in Great Britain.

DESCRIPTION OF A NEW SPECIES OF *OCCLADIUS* FROM PERIM.

BY MALCOLM CAMERON, M.B., R.N.

OCCLADIUS WALKERI, n. sp.

Convex, ovate, black, slightly shining. Head small, convex, moderately coarsely, but not very closely punctured, rostrum curved, quadrisulcate, sulci punctured. Antennæ ferruginous.

Thorax convex, subconical, sides rounded, coarsely punctured in distinct longitudinal rows, punctures not confluent.

Elytra subglobose, with rows of large oblong punctures. Each elytron furnished with three patches of whitish scales, two at the base (one at the shoulder, and one near the suture) and one towards the apex.

Legs black, tarsi ferruginous.

Length, without rostrum, 4 mm.

Found at roots of herbage in the island of Perim by Mr. J. J. Walker and myself.

This species is smaller and narrower than *O. salicorniæ*, Ol., and *O. setipes*, Ancy. From the former it also differs in the much more coarsely punctured thorax and elytra, and in the spots not being united to form a fasciæ.

From *O. setipes* it differs also in the punctuation of the thorax not being confluent, the strongly punctured elytra, and the spots not uniting to form a fasciæ.

R. N. Hospital, Chatham :

April, 1905.

LYMEXYLON NAIVALE, LINN., IN THE NEW FOREST.

BY G. C. CHAMPION, F.Z.S.

During a recent visit to this well-known locality I was extremely surprised at meeting with several specimens of this peculiar Coleopterous insect. There has been in previous years much discussion as to whether *Lymexylon* is really a native of Britain or an importation. The only well-authenticated record in modern times is its capture at Dunham Park, Cheshire, where it was found in considerable numbers, by Mr. Chappell and others. In the New Forest it is at present quite at home. I, together with Dr. Sharp, Mr. C. G. Lamb, and Mr. F. M. Howlett, found the beetle at several trees, the first and last of which were fully a mile apart, and Dr. Sharp captured one

specimen on a heap of logs. It was subsequently taken by Miss M. A. Sharp, and I understand that Mr. Donisthorpe met with the insect a few days earlier than we did, though in what part of the Forest I have no idea. The trees at which we found it had apparently not been touched by an entomologist this season. *Lymexylon* is attached to oak, and there seems no reason why it should not be an old native in the Forest, though if this be the case it is somewhat remarkable that the insect has not been met with before. According to Canon Fowler, the species is common in oak forests in the north of Europe, and it is said to have done considerable damage in the dockyards of Sweden.

Horsell: *July 17th*, 1905.

COLEOPTERA IN THE OXFORD DISTRICT.

BY JAMES J. WALKER, M A., R.N., F.L.S.

Having now resided in Oxford for rather more than a year, I find that my first impressions, as to its being an excellent and very interesting collecting centre for all Orders of insects, are fully confirmed. The following list of *Coleoptera*, almost without exception taken by myself within a radius of six miles from the centre of the city, will show that this Order, at any rate, is well represented in the district. To my friend Mr. W. Holland I owe my first introduction to nearly all the places hereafter mentioned, and in many cases to the actual and often very limited localities of uncommon and interesting beetles which his persevering industry and acumen have brought to light.

Commencing with the localities in Berkshire, the most productive of these is at Tubney, about six miles south-west of Oxford, but more easily reached from Abingdon by a pleasant walk of half that length. Here a sandy soil, extensive woodlands and heathly commons, and a luxuriant and varied vegetation, combine to make a very attractive piece of collecting-ground; and a nice bit of marshy thicket at Cothill (the "Ruskin Plot," now the property of the Ashmolean Natural History Society of Oxford) may be taken on the way thither from Abingdon. A remarkable feature of this inland locality is the

number of insects, usually associated in our minds with seaside conditions, to be met with here. Thus, *Agrotis vestigialis* (*valligera*) has occurred not rarely, as well as at Boars' Hill on somewhat similar ground not far distant; and among the *Coleoptera*, *Harpalus anxius* (recorded by Mr. Holland, Ent. Mo. Mag., vol xxxviii, p. 18) *Amara fulva*, and *A. tibialis*, are among the commonest of their respective genera; *Bledius opacus* is found burrowing in the sand in numbers in spring and autumn, and *Heterocerus flexuosus* in the banks of ponds; *Notoxus monoceros* (in all its varieties) and *Microzoum tibiale* swarm at times, and *Oteniopus sulphureus* abounds on the flowers of the yellow bedstraw (*Galium verum*) in July; *Orthocerus muticus* is sometimes not uncommon, and *Crypticus quisquilius* has been found in plenty by Mr. Holland, but I have not yet met with it myself.

Among the species taken here by me are: *Cychrus rostratus*, occasionally in a sand-pit; *Harpalus discoideus*, at times very common under stones, and *Amara consularis*, abundant under rubbish in sandy fields. *Aleochara cuniculorum*, found in great numbers early in May by Mr. G. C. Champion and myself in two large and very strong-smelling rabbit-burrows on the common; *Lamprinus saginatus*, very sparingly by cutting tufts of grass infested with *Myrmica ruginodis*, in April; *Gyrophæna strictula*, very abundant in a hard *Boletus* on a stump, and *Encephalus complicans* in tufts. *Microglossa pulla*, *Engis humeralis* (common), *Cryptophagus populi*, *Triphyllus suturalis*, *Tiresias serra*, *Hypophlæus bicolor*, and *Tetratoma fungorum* in plenty, in fungus and under bark on an old elm; *Pocadius ferrugineus*, numerous in puff-balls, and *Trox sabulosus*, under dry rabbit-skins. *Ceuthorrhynchus geographicus*, on *Echium vulgare*, and *Ceuthorrhynchideus horridus*, on *Carduus nutans*, both common; *Cæliodes exiguus*, in plenty on *Geranium pyrenaicum*. *Apion schönherri* (another insect usually associated with sea-coast conditions), somewhat local, but almost, if not quite, the most abundant yellow-legged *Apion* in the district, occurring plentifully even by the roadside throughout the summer, as well as in tufts of grass in early spring. *A. sanguineum*, occasionally by sweeping, but more frequently in a sand-pit, where Mr. Holland has taken it quite freely in the late autumn; *A. pallipes* on *Mercurialis*, and *A. pubescens* and *spencei* by general sweeping. This latter method has produced, among many other species, *Callicerus obscurus*, *Homalota scapularis*, *Anisotoma rugosa* (a fine example on October 22nd last year), *Catops sericatus*, *Saprinus virescens* (by Mr. Champion in May last), *Heptaulacus villosus* (one each by Mr. Holland and myself on July 9th last year; I have also taken this species within the last few days at Wychwood Forest and at Streatley, Berks); *Trachys pumila*, rarely in the sand-pit, and more frequently by sweeping the shortest herbage on which the net can be got to bear, in open places among the bracken in the wood; all the specimens that I have taken in this way appear to come off *Nepeta glechoma*; *Limonium cylindricus* (also common under stones), *Cryptohypnus 4-pustulatus*, *Malachius viridis* (common),

Anthocomus fasciatus, *Phytæcia cylindrica*, *Longitarsus agilis*, *Brachytarsus varius*, *Orthochartes setiger*, *Sibinia primita*, *Miarus plantarum*, *Orobitis cyaneus*, *Phytobius 4-tuberculatus*, and *Hylesinus oleiperda*. Mr. Holland has found here also *Panogxus 4-pustulatus* (several), *Pæcilus lepidus*, *Amara patricia*, *Onthophilus sulcatus* (in the sand-pit in November last), &c.

Wytham Park and Woods being within an easy walk of my residence, have been visited by me pretty regularly, and have produced a good many interesting insects, chiefly by sweeping under the fine beech trees on Wytham Hill, which consists of oolitic limestone, and bears a flora almost as rich and varied as that of the chalk downs.

The *Coleoptera* taken here include *Hypocyrtus seminulum*, *Homalium septentrionis* (also in fungi, with *Gyrophæna manca*, *fasciata*, &c.), *H. cæsum* var. *tricolor*, and *icpterum*; *Megarctus hemipterus*, *Agathidium nigripenne* (under oak bark), *Liodes orbicularis*, *Anisotoma cinnamomea* (also at Summertown), *dubia*, *oralis* and *punctulata*, *Cyrtusa paucilla*, *Hydnobius punctatissimus* (black form), and *strigosus* not rare; *Bythinus curtisi*, *Enconnus denticornis*, *Cryptophagus pubescens*, *Diphylus lunatus*, in plenty in black fungus (*Sphaeria*) or ash; *Abræus globosus* and *Enicmus testaceus* in rotten wood; *Trachys pumila*, by sweeping as at Tubney, and adhering to the viscid foliage of *Hyoscyamus niger*; *Longitarsus exoletus*, abundant on *Cynoglossum* as well as on *Echium*, *L. gracilis* in the utmost profusion on ragwort, and *Epitrix atropæ*, almost equally common on *Atropa belladonna*; *Mantura matthewsi* on *Helianthemum vulgare*, and *Psylliodes hyoscyami*. This species occurred sparingly in August last on a patch of seedling plants of henbane (*Hyoscyamus niger*) and more freely this year on the same plants, now grown to a height of nearly a yard and flowering profusely. Collecting *Psylliodes hyoscyami* is about the most disagreeable work of its kind that I know, as besides that half at least of the specimens seen are lost, through their activity in leaping, the food-plant is most unpleasantly sticky, and its heavy narcotic odour is very provocative of headache under a strong sun.* *Conopalpus testaceus*, *Mordella fasciata* (not rare on small Umbelliferous flowers), *Mordellistena lateralis*, *Apion filirostre*, *Trachypheus alternans*, and many other species of less interest.

Bagley Wood is another very tempting-looking locality, but at the present time is much too strictly preserved to be generally available for collecting. In my occasional visits there I have met with *Anisotoma badia*, *Colin brunneum*, *Neuraphes angulatus*, *Trachys minuta*, *Throscus carinifrons*, *Apion cruentatum*, &c., by general sweeping; *Haplocnemus nigricornis*, *Mordellistena abdominalis*, and *Brachytarsus varius*, by beating hawthorn blossom; *Chrysomela didymata*, in abundance on *Hypericum*, and *Sitones cambricus* sparingly, in company with *Apion ebeninum*, on *Lotus major* in October; *Leptinus testaceus*, *Agathidium seminulum*, *varians*, *convexum*, and *nigrinum*, *Amphicyllis globus*, *Choleva spadicea*, *Atomaria umbrina*, and *Liosomus ovatus* var. *collaris*, in faggots; *Micrurula melanocephala*, plenti-

* I have unset specimens of *Psylliodes hyoscyami* at the service of any Coleopterist who may be in want of the species.—J. J. W.

ful on blackthorn blossom; and a small colony of *Melasis buprestoides* in decayed hornbeam in February last. *Crepidodera nitidula* has recently occurred here on aspen to Messrs. Collins and Holland.

At Boars' Hill, not far distant, with a more sandy soil, *Harpalus discoideus* is sometimes fairly common, and I have taken *Pterostichus oblongopunctatus*, rather plentifully among dead boughs, &c. (also at Bagley), *Hister purpurascens*, *Rhynchites interpunctatus*, *Apion confluens* and *affine*, &c.

Turning now to the Oxfordshire localities, at Ogley Bog, a very marshy valley not far from the suburb of Cowley, *Eubria palustris* was taken sparingly in July, 1904, and again within the last few days, by sweeping on hot calm evenings in the wettest places. *Longitarsus holsaticus* is common at times here (and at Cothill) on *Pedicularis palustris*, and *Anthobium minutum*, *Haltica lythri* (abundant). *Limnobaris T-album*, &c., have occurred by sweeping; *Lebia chlorocephala* being not rare in tufts of grass in the winter.

A marshy place near Yarnton has yielded, chiefly by cutting tufts and shaking moss in early spring, *Aleochara brevipennis*, *Myrmedonia collaris*, *Homalota languida* (small form) and *insecta*, *Conosoma pedicularium*; many species of *Stenus*, of which *longitarsis*, *atratus*, *bifoveolatus*, and *circularis*, are the best; *Lathrobium filiforme* (common), *quadratum*, and *longulum*, *Bryaxis impressa* (common), *Phalacrus caricis*, *Thryogenes festucae*, &c. *Ochthebius bicolon* and *Hydroporus granularis* abound here in shallow water, and in May last I took, in company with abundance of *H. variegatus*, a *Haliptus* which I refer to the var. *pallens*, Fowler, of *H. confinis*.

At Elsfield, *Ceuthorrhynchus resedæ* is not rare in June on the *Reseda luteola* growing in a small stone-pit, and I have taken here one *C. viduatus* (and another on the banks of the Thames near Godstow), *C. melanarius*, *Longitarsus flavicornis*, *Apion vicinum*, &c.

The *Donacia* find a congenial habitat on the banks of the Thames and Cherwell, the most abundant being *D. semicuprea*, which swarms on the tall river-side grass *Glyceria aquatica*, of which it nibbles the leaves in a very conspicuous and characteristic fashion. *D. affinis* is fairly common in early summer on the same grass, with, occasionally, *D. thalassina* and *impressa*. Later on *D. dentata* abounds locally on *Sagittaria*, and *crassipes* is often seen on the leaves of the water-lilies, being apparently most partial to those of *Nuphar luteum*. It is, however, so active and wary that it is difficult to secure a good series without the aid of a boat. Of the very rare *Hæmonia appendiculata*, there are two examples in the British Collection of *Coleoptera* in the University Museum, taken on water-weeds at Binsey, on the Thames; but it has so far baffled Mr. Holland's efforts as well as my own to find it "at home."

"Aorangi," Lonsdale Road,

Summertown, Oxford:

July 13th, 1905.

A NEW GEOMETER FROM HONG KONG.

BY G. B. LONGSTAFF, M.D., F.R.C.P.

*GEOMETRIDÆ, BOARMIANÆ.*ORSONOBA ORTHOGRAMMARIA, *n. sp.*

♀ Exp., 43 mm. Head greyish-ochreous, frons paler. Thorax reddish-grey. Abdomen pale ochreous, first segment and anal tuft ferruginous. Fore-wing greyish-ochreous irrorated with reddish-grey, from the post-medial line to the termen darker; base clouded with reddish-grey; the cell brighter ochreous. The angulated ante-medial line and nearly straight post-medial line edged internally with pale ochreous. A pale triangular mark on the costa near the tip. Indications on the inner margin of dark central and subterminal lines. Hind-wings greyish-ochreous, reddish-ochreous beyond the straight post-medial line, two dark central lines.

Readily distinguished by the straight post-medial lines on both fore- and hind-wings.

Type in Coll. Hope, Oxford.

One specimen, ♀, taken at light, April 8th, 1904, outside the Peak Hotel, Hong Kong, c. 1400 ft. above sea-level. (*G. B. Longstaff*).

Highlands, Putney Heath :

January 25th, 1905.

Notes on three species of Microglossa.—*Microglossa marginalis*, Gyll. : I took two specimens near here in April last from an old woodpecker's hole in the trunk of a beech tree recently blown down. The hole had evidently been used by starlings for some years, and I think, since it had been blown down, by a mouse, as it contained a quantity of fine grass. *Dendrophilus punctatus*, Herbst, a common starling's nest species, was accompanying the *Microglossa*. I feel quite confident that a specimen of this species also occurred in the old bat's nest out of which I took *Neuraphes carinatus*, Muls., *Choleva colonoides*, Kr., &c., last year (Ent. Mo. Mag., ser. 2, xv, 255), but unfortunately Mr. Tomlin, who took the specimen, has mislaid it.

Microglossa pulla, Gyll. : I have found this species in every fresh titmouse's nest I have examined this year, and it has sometimes occurred in abundance, but I have failed to find it in one or two old nests. I have also taken it in the fresh nests of the flycatcher and starling. I have never discovered it in the nest of the sand-martin, although I have searched for it carefully. I should suspect it inhabits the fresh nest of any species of bird that builds in a hole in a tree.

Microglossa nidicola, Fairm. : very abundant in the fresh nests of sand-martins; it seems to disappear as soon as the birds desert their nests in the autumn.

These three species can be distinguished at once in life by the colour of the

elytra, although this point is not nearly so distinct in cabinet specimens. *M. marginalis* has the elytra bright red, *M. nidicola*, distinctly, but not bright red, *M. pulla*, dark brown. One of my specimens of *M. marginalis* has the margins of the thorax only quite narrowly red. The difference in the punctuation of the three species is to my mind very distinct.—NORMAN H. JOY, Bradfield: July 3rd, 1905.

[I have taken *Microglossa gentilis*, Maerk., as well as *M. pulla* in *débris* of hollow elm trees occupied by owls, in the Isle of Sheppey. The former species is as a rule associated with *Formica fuliginosa*.—J. J. W.]

Xanthandrus comtus, Harris, occurring in May.—As Dr. Chapman suggests (*ante*, p. 150) the probability of *Xanthandrus comtus*, Harris, being double brooded in Britain it may be as well to record the fact that I took a specimen of this Syrphid in the garden here on May 30th, 1903. It is a male, and was in such perfect condition that it could only recently have emerged from the pupa. In my experience the fly is rare here, only two other specimens having fallen to my net, one ♀ on September 2nd, and one ♂ on September 19th, 1902—dates which are much more in accordance with those given by Verrall.—C. R. BILLUPS, Tower House, East Grinstead: July 8th, 1905.

Exotic Dermaptera wanted.—I am preparing a revision and monograph of the *Dermaptera* (*sensu stricto*, i.e., *Forficularia*) of the world, and would very gratefully receive any material; earwigs from Central and South Africa and from Australia and China are especially wanted.—MALCOLM BURN, 23, Blomfield Court, Maida Vale, W.: June 24th, 1905.

Review.

REPORT OF WORK OF THE EXPERIMENT STATION OF THE HAWAIIAN SUGAR PLANTERS' ASSOCIATION, DIVISION OF ENTOMOLOGY. Bulletin I, Pt. I, LEAF HOPPERS AND THEIR NATURAL ENEMIES (Pt. i, *Dryinidæ*). By R. C. L. PERKINS. Honolulu: May 27th, 1905.

The above Association may be congratulated on the interesting Bulletin with which they have commenced this series of Entomological publications. The Life History of the *Dryinidæ* and their habits in relation to the Leaf Hoppers, of which they are the Natural Enemies, is given by Mr. Perkins in a very interesting way. Their parasitism has been utilized as a means of ridding the sugar canes of the hopper. The Dryinids lay their eggs in the hoppers, and the larvæ when hatched feed upon the bodies of their hosts. These parasite larvæ in their earlier stages are enclosed in cases which project visibly from the body of the hopper. Those who collect *Homoptera* in this country must know well the black seed-like objects often to be seen projecting from the under-side of the thorax in many species, especially in the genus *Athysanus*; these are the larva cases of *Gonatopus*, a genus of the same family. The Association have found that by breeding Dryinids in large numbers and turning them out on the sugar canes the ravages of the hopper can be

largely checked, as a hopper which nourishes a Dryinid, Mr. Perkins says, "is practically dead, for in no case is it probable that it would be capable of reproduction, and usually it dies at the moment of the emergence of the larva."

The latter part of the Report is occupied in a comparative study of the generic characters of the *Dryinidæ* and a synopsis of the genera and species considered in the Report, with descriptions of numerous new genera and species. This part is an important addition to our knowledge of these parasites.—E. S.

Societies.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY :
Thursday, June 8th, 1905.—MR. HUGH MAIN B.Sc., President, in the Chair.

Mr. Kaye exhibited a bred series of *Zonosoma pendularia*, showing considerable variation, with pupa cases in situ on the leaves, and referred to the variable position of the girth. Mr. West (Greenwich) examples of the uncommon *Coccinella distincta* which he had taken at Darenth Wood, together with *Mordellistena abdominalis*, a Coleopteron parasitic in bees' nests. Mr. Sich, the exceedingly small ovum of *Lithocolletis quercifoliella*. Mr. Main, the tracheal tubes of the silkworm, which had been dissected out by means of a solution of potash; he also showed a case of insects from West Africa.

Thursday, June 22nd, 1905.—MR. ALFRED SICH, F.E.S., Vice-President, in the Chair.

Mr. Rayward exhibited a larva of *Thecla w-album* spun up for pupation and also a pupa, and showed the remarkable mimetic resemblance to a crumpled shrivelled leaf. Mr. Turner, a long series of *Colias eurytheme* vars., including *v. eriphyle*, *v. keewaydin*? sent to him by Mr. A. J. Croker, from Assiniboia, and read a short paper on the species and its allies; he also showed *C. philodice*, *C. palæno*, *C. erate*, *C. hyale*, *C. edusa*, *C. electra*, *C. phicomone*, and *Meganostoma cæsonia*. Mr. Edwards, a number of species of *Colias*. Mr. Stonell (1) a specimen of *Euchelia jacobææ* from Oxshott, with the apical hind marginal and costal streaks united, (2) a very pale *Amorpha populi*, (3) *Angerona prunaria* ♀s with ♂ coloration, (4) *Boarmia abietaria v. sericearia*, (5) *Acidalia humiliata* from the Isle of Wight, (6) larvæ of *Nyssia lapponaria* from Rannoch, and (7) larvæ of *Apatura iris* from North Hants. Dr. Chapman, larvæ of *Aretia villica* from ova laid by a female captured in April at Taormina in Sicily, and also imagines of *Graellsia isabellæ* bred from larvæ taken at Broncholes, together with ova laid by them. Mr. Adkin gave a short account of the Annual Congress of the S. E. Union of Scientific Societies held at Reigate, June 6th to 10th.—H. J. TURNER, Hon. Secretary.

ENTOMOLOGICAL SOCIETY OF LONDON : *Wednesday, June 7th, 1905.*—MR. F. MERRIFIELD, President, in the Chair.

Herr Ludwig von Ganglbauer, of the Vienna Museum, was elected an Honorary Fellow of the Society.

Mr. Charles J. Grist, of "Apsley," Banstead, Surrey; Mr. Vernon Parry Kitchen, of the Priory, Watford, Herts; and the Rev. W. Mansell Merry, M.A., of St. Michael's, Oxford, were elected Fellows of the Society.

Mr. F. Burr exhibited an earwig, *Apterygida arachidis*, Yers., found by Mr. Annandale of Calcutta, in a box of specimens received from the Andaman Islands. When placed in a small box, it was alone, but next morning there were five larvæ present; two disappeared, apparently being consumed by the parent; and the remaining three were those exhibited. Mr. Burr also showed a Locustid of the family *Pseudophyllidæ* from Queensland, taken among twigs and plants which it greatly resembled, together with a photograph of the insect in its natural position. Mr. E. C. Bedwell showed three examples of *Gnorinus nobilis*, L., taken at Woolwich on May 20th last under the bark of an old dead cherry tree, and a malformed specimen of *Lochnæa suturalis* which had the left posterior tibia bifid for about one-third of its length, and two tarsi, one of which had the joints considerably enlarged. Mr. O. E. Janson, a living specimen of *Omophlus betulæ*, Herbst, a beetle not known to occur in Britain, found by his son near Covent Garden, and probably imported. Mr. W. J. Lucas, one ♂ and three ♀♀ of *Agriion armatum* taken this year by Mr. F. Balfour Browne and sent to him alive. Mr. G. C. Champion showed four specimens of the rare *Aerognathus mandibularis*, Gyll., captured on the wing towards sunset, near Woking, at the end of May. Mr. Selwyn Image, two aberrations of *Biston hirtarius*, Cl., both females, taken by himself at rest on tree-trunks at Morteheo, North Devon, April 23rd, 1905. The first aberration was tolerably normal in general colouration, but the anterior half of the fore-wings was much suffused with fuscous, and at the costa broadly emphasized with rich black. The transverse lines on the hind-wings, all unusually distinct, were also dark, and broad throughout. The second aberration was semi-transparent black all over both fore and hind-wings, the veins strongly delineated with black, powdered with ochreous. Mr. W. J. Kaye showed a number of empty pupa-cases of *Zonosoma pendularia* to demonstrate the wide variation of methods in the placing of the silken girth round the pupa. Professor E. B. Poulton, leaves of strawberry, *Berberis japonica*, and cherry-laurel which had been sent to him by Mr. W. B. Grove, of Handsworth, Birmingham. The leaves had been attacked by minute fungi which, in the strawberry and *Berberis*, had been identified by Prof. S. H. Vine, F.E.S., as *Phyllosticta fragaricola* and *Phyllosticta japonica*, respectively. The clean round holes in the laurel leaves had been caused by a fungus identified by Mr. George Massee as *Cercospora circumscissa*, Sacc.—the "shot-hole fungus." The attack was local and followed by the death and disappearance of the central portion of the leave-tissue of each patch, leaving a roundish or oval window outlined with brown, sometimes in the form of a narrow line, sometimes spreading peripherally into the leaf for a greater or less distance. In the strawberry the edges of the windows were somewhat ragged, but those of the other two leaves had smooth contours, and strikingly resembled the oval transparent areas upon the fore-wings of *Kallima inachis*, *paralekta*, &c.—surrounded most conspicuously with a marginal zone of modified colour varying greatly in different individuals as regards both tint and breadth. Professor Poulton had believed that these "windows" of *Kallima* represented holes gnawed by larvæ and that the altered marginal zone reproduced the effect of the attacks of fungi entering along the freshly exposed tissues of the

edge. But he now desired to withdraw his earlier hypothesis in favour of the more probable and convincing suggestion made by Mr. Grove. Professor Poulton also showed a photograph of the fungus-like marks on the wings of the Oriental Kallimas, prepared under his direction by Mr. Alfred Robinson of the Oxford University Museum. Dr. Karl Jordan communicated a note upon the Variability of the Genitalia in *Lepidoptera*. Dr. G. B. Longstaff detailed his observations on scents in the male of *Gonepteryx*, and mentioned that whereas in the male *G. cleopatra*, the odour was strong, he had been unable to detect any appreciable fragrance in *G. rhamni*. Such a difference, he said, seemed to imply a physiological difference between the two forms pointing to specific distinction. Dr. F. A. Dixey, in connection with Dr. Longstaff's observations, exhibited the several forms of *Gonepteryx* occurring in the Palearctic region, and demonstrated the variation of wing coloration in the respective forms ranked as species. Mr. H. J. Elwes read a note on the Geographical Affinities of Japanese Butterflies, of which he also exhibited numerous specimens taken by himself. Summing up his remarks, he said that during the winter and spring months the plants and insects of Japan were, like the climate, Palearctic in character, yet during the summer and autumn they were tropical. Professor Christopher Aurivillius communicated a paper on "New African *Lasio-campidæ* in the British Museum." Mr. G. W. Kirkaldy communicated a "Memoir on the *Rhynchota* taken by Dr. Willey chiefly in Birara and Lifú."—H. ROWLAND-BROWN, *Hon. Secretary*.

LIST OF BRITISH *DOLICHOPODIDÆ*, WITH TABLES AND NOTES.

BY G. H. VERRALL, F.E.S.

(Continued from page 172).

26. *MEDETERUS* Fisch.

Small grey or greenish-grey flies, which sit in a very upright fashion on walls, tree-trunks, stones, &c., and which can run in any direction without turning round.

- | | | | |
|----|------|--|--------------------------|
| 1 | (2) | Scutellum with only two bristles..... | 1. <i>micaceus</i> Lw. |
| 2 | (1) | Scutellum with four bristles. | |
| 3 | (4) | Middle tibiæ with no bristle near base..... | 2. <i>muralis</i> Meig. |
| 4 | (3) | Middle tibiæ with a bristle near base. | |
| 5 | (12) | Acrostichal bristles fairly large and distinct. | |
| 6 | (11) | Last portion of postical (fifth) vein longer than discal cross-vein ; smallish species. | |
| 7 | (8) | Knob of halteres darkened (at least above) | 3. <i>tristis</i> Zett. |
| 8 | (7) | Knob of halteres clear pale yellow. | |
| 9 | (10) | Middle sized species with dark legs ; all bristles on thorax black... | 4. <i>apicalis</i> Zett. |
| 10 | (9) | Small species with palish legs ; some of the small bristles on thorax pale in certain lights | 5. <i>pallipes</i> Zett. |
| 11 | (6) | Last portion of postical (fifth) vein not longer than discal cross-vein ; large species ; antennæ reddish at base..... | 6. <i>obscurus</i> Zett. |

- 12 (5) Acrostichal bristles very short.
- 13 (16) Legs yellow, at the utmost femora black or brown at the base only.
- 14 (15) Face shining metallic, dull at the suture only.....7. *diadema* L.
- 15 (14) Face all whitish-grey.....8. *flavipes* Meig.
- 16 (13) Legs black with just knees yellowish.
- 17 (18) Face all whitish grey9. *jaculus* Meig.
- 18 (17) Face metallic, on at least lower part.
- 19 (20) Last portion of postical (fifth) vein longer than discal cross-vein* ;
hypopygium smallish ; smallest species of this group...
10. *truncorum* Meig.
- 20 (19) Last portion of postical (fifth) vein shorter or at least not longer than
discal cross-vein.*
- 21 (22) First and second portions of discal (fourth) vein about equal* ; smallish
species11. *dendrobæus* Kow.
- 22 (21) First portion of discal (fourth) vein obviously longer than second* ;
largish species with handsomely striped thorax...
12. *petrophilus* Kow.

About thirty species of this genus are recorded from Europe, of which at least a dozen more ought to occur in Britain ; I believe that I possess about three unrecorded species, but my specimens are not in sufficient quantity or quality for accurate identification. Whenever a species occurs it is sure to be in abundance, but as most of the species resemble each other so much they are not readily recognised at the time of capture.

1. *M. micaceus* Lw. : my specimens were taken in Sussex, Surrey, Suffolk and Norfolk, and I expect it is fairly common. At present it is the only species recorded from Britain which has only two bristles on the scutellum, although five are known in Europe.
2. *M. muralis* Meig. : I have caught this species in Devonshire, Hampshire, Sussex, Suffolk, and Westmoreland, and consequently imagine it may be found anywhere if properly looked for.
3. *M. tristis* Zett. : I feel no doubt but that I have correctly identified as this species specimens from Cornwall, Hampshire, Sussex, and Hereford, besides several from Rannoch and Nethy Bridge, but yet the species seems to be uncommon.
4. *M. apicalis* Zett. : I do not think that the male of this species has yet been described, but I believe I have correctly identified numerous specimens of both sexes from the New Forest, as well as stray specimens from Cornwall, Westmoreland,

* Not very satisfactory characters, though I believe the species are distinct.

Ayrshire, and Arran. Two out of three specimens in Kowarz's collection seem to me to be the same species as my specimens.

5. *M. pallipes* Zett.: a well distinguished little species which I have taken in some numbers in Sussex (Lewes) and Kent (Lee).
6. *M. obscurus* Zett.: I had long suspected this species to be British because of a specimen taken at Rannoch in 1870, but it was not in good enough condition for identification; I then saw a specimen which was probably this species and which had been taken by Dr. Sharp in the New Forest, but all doubt was removed by a fine female taken by Col. Yerbury at Nethy Bridge on August 8th, 1904. This species may usually be distinguished at a glance by its much larger size than any other species of the genus.
7. *M. diadema* L.: one of the largest British species. Very abundant on railings about "The Five Miles from Anywhere" near Wicken Fen, and I believe over all the sandy district past Brandon on to Yarmouth.
8. *M. flavipes* Meig.: abundant in company with the last species near Wicken Fen; and also over a very large area in East Anglia, as I have caught it in my garden here and found it in abundance on Yarmouth beach, while the Cambridge Dipterists find it common there; and Mr. C. G. Lamb has taken it at Padstow in Cornwall. It is a very distinct but very little known species, which is so generally supposed to be limited to the Mediterranean Fauna that Kowarz in his Monograph of the European species of the genus published in 1877 gave it as occurring in South Europe and Asia Minor, and mentioned Constantinople, Barcelona, and Lyons as localities, while he evidently considered Röder's record from Wurtemberg as founded on an error. He further states that it differs from *M. jaculus* only by the colour of the legs, and that consequently it may be only a variety of that species, while as a matter of fact it is abundantly distinct.

It was recorded as British in Stephens' catalogue of 1829, and feeling a curiosity to know upon what Stephens could have introduced it I many years ago sought out his specimens in the British Museum, and found three specimens so named; two of them were specimens of a *Psilopus* (!) but the third was the true *M. flavipes*.

9. *M. jaculus* Meig.: a rather large and well distinguished species, fairly common from Penzance to Cambridgeshire and Suffolk, or even to Norfolk (Brandon), and Col. Yerbury took it at Porthcawl.
10. *M. truncorum* Meig.: occurs by thousands everywhere and consequently I have omitted to notice records, and mine only extend from Cornwall to Suffolk and Cambridgeshire, unless specimens taken by Col. Yerbury at Nairn and Golspie belong to this species. It may be seen sitting in large numbers in its peculiar upright fashion on the walls of almost any house, but is easily overlooked until the eye has become trained to detect it. Great care is necessary to distinguish it from the next two species and from *M. tenuicauda* Lw., but I think its habits are different and it is the smallest species of the group. *M. truncorum* prefers houses and walls, *M. dendrobænus* tree trunks in large woods, and *M. petrophilus* such stones as occur on dry beaches.
11. *M. dendrobænus* Kow.: my records are from Hampshire, Sussex and Norfolk, but I have never specially noticed it as a distinct species when capturing it. I think I have seen it from Cornwall and Somerset.
12. *M. petrophilus* Kow.: Hampshire, Suffolk and Norfolk, and I think from Cornwall to Sutherland. Usually taken by me in miscellaneous captures without my recognition of its specific distinctness at the time. Mr. C. G. Lamb has taken a lot of beautiful specimens at Padstow in Cornwall, and I expect it is universally common in suitable localities.

27. *SCELLUS* Lw.

S. notatus Fabr.: a very distinct and peculiar species, which cannot be mistaken for any other species recorded for Britain, though the allied *S. spinimanus* Zett. is almost certain to occur with us. *S. spinimanus* is distinguished by the absence of the blackish round spot on the last portion of the discal (fourth) vein; the third European species *S. dolichocerus* Gerst. is known from only one male taken in Oeland. My records of *S. notatus* were from only Sussex, Kent, and Essex, until 1904, when I saw it from Cornwall and Inverness, but I do not think it is rare, and it is certainly sometimes abundant amongst marshy herbage near the sea-coast.

28. *HYDROPHORUS* Whlbg.

- 1 (10) Wings quite unspotted.
- 2 (3) Scutellum with only two bristles1. *bisetus* Lw.
- 3 (2) Scutellum with four bristles.
- 4 (5) Face brilliant brassy on upper half2. *balticus* Meig.
- 5 (4) Face all whitish or orange.
- 6 (9) Face all whitish.
- 7 (8) Jowls obvious3. *præcox* Lehm.
- 8 (7) Jowls absent4. *litoreus* Fall.
- 9 (6) Face all orange5. *viridis* Meig.
- 10 (1) Wings with at least a dark spot on last piece of discal vein.
- 11 (16) Wings with two rather faint dark spots.
- 12 (13) Face burnished blue-green on upper half.....6. *bipunctatus* Lehm. .
- 13 (12) Face nearly all whitish or orange.
- 14 (15) Face (♂) silvery whitish7. *borealis* Lw.
- 15 (14) Face orange8. *rufibarbis* Gerst.
- 16 (11) Wings with numerous spots9. *nebulosus* Fall.

1. *H. bisetus* Lw.: apparently very common on all the coast of Britain, at any rate I have taken it at a great many localities, of which all except Coniston (where I have taken several marine species) were on the sea-coast; the most divergent localities were Exmouth, Dyffryn, Aldeburgh, and Golspie. Although this species has been well known in Britain for more than fifty years it has not yet been recorded from the Continent. A female taken at Dyffryn on July 21st, 1888, has a small extra bristle on the scutellum.
2. *H. balticus* Meig.: not uncommon from Cornwall to Nairn, preferring the coast.
3. *H. præcox* Lehm.: in various localities, from Cornwall to Sutherland; also occurring on the sea-coast, but not at all uncommon on pools inland. A number occurred recently on a newly-made pond in my garden, but most likely they arrived as larvæ in some Wicken Fen earth which had been placed in the pond.
4. *H. litoreus* Fall.: I have taken this in Sussex, Middlesex, Suffolk, and Norfolk, but in spite of its name never on the coast.
5. *H. viridis* Meig.: I took one female of this species at Hendon on November 9th, 1867, and one male at Ormesby on June 22nd, 1881.
6. *H. bipunctatus* Lehm.: from Cornwall (Helston) to Inverness

(Nethy Bridge), but still not a common species, and apparently a frequenter of fresh water for preference.

7. *H. borealis* Lw.: not uncommon at Rannoch, Braemar, Nethy Bridge and Golspie, and therefore probably over all the Scotch Highlands. The upper part of the face is usually described as "tarnished," but to me the distinction is but slight on the whitish face of the male or on the orange face of the female.
8. *H. rufibarbis* Gerst.: I am compelled to assign this name to a male taken at Callater, near Braemar, on July 20th, 1873, as it certainly does not belong to any other known European species. I believe I caught it on the little stream which crosses the path just before the loch when approaching from Braemar. Gerstaecker described the species in 1864 from a female taken near Berlin and a male taken near Stettin, but it seems to have not been noticed since by anybody.
9. *H. nebulosus* Fln.: I have taken this very distinct little species in some numbers in the New Forest, at Reigate in Surrey, and at Lairg, while Col. Yerbury found it in numerous localities in North Scotland in 1904.

29. *LIANCALUS* Lw.

- 1 (2) Legs all black; scutellum with six bristles; wing (♂) snow-white at tip...
1. *virens* Scop.
- 2 (1) Legs black, with yellow knees and joints; scutellum with four bristles...
2. *lacustris* Scop.
1. *L. virens* Scop.: common wherever water trickles down a perpendicular surface, from Cornwall to Sutherland.
2. *L. lacustris* Scop.: much rarer than the other species, and I only know it from Hampshire, Sussex, and Suffolk. The genus *Allæoneurus* is not worth adoption.

30. *CAMPSICNEMUS* Walk.

- 1 (14) Legs peculiarly formed or adorned (slight in *C. pectinulatus*); antennæ not pale at base.
- 2 (3) Only front legs peculiarly formed; middle legs simple; front tarsi with extraordinary split up processes1. *magius* Lw.
- 3 (2) Middle legs peculiarly formed or adorned, and sometimes front legs also.
- 4 (5) Front tarsi dilated at tip; face and postocular cilia black; middle femora and tibiæ finely ciliate and pectinate.....2. *pusillus* Meig.
- 5 (4) Front tarsi not dilated at tip; lower postocular cilia pale.
- 6 (11) Basal joint of middle tarsi much shorter than second joint (only a little shorter in *C. loripes*).

- 7 (8) Anterior femora pectinate beneath ; basal joint of middle tarsi tangled ; middle tibiæ remarkably dilated and ciliated.....3. *scambus* Fall.
- 8 (7) Front femora not pectinate beneath.
- 9 (10) Posterior femora pectinate beneath4. *curvipes* Fall.
- 10 (9) Only middle femora pectinate beneath.....5. *loripes* Hal.
- 11 (6) Basal joint of middle tarsi much longer than second joint.
- 12 (13) Middle femora and tibiæ with rather long pectination...6. *armatus* Zett.
- 13 (12) Middle femora and tibiæ minutely pectinate, almost simple...
7. *pectinulatus* Lw.
- 14 (1) Legs altogether simple (conf. *C. pectinulatus*) ; antennæ orange at base...
8. *picticornis* Zett.

Several more species are likely to occur in Britain.

1. *C. magius* Lw. : on July 9th, 1894, I took a pair of this extraordinary species at Bawdsey, near Felixstowe. It was first described by Loew from Sicily, and he was blamed by Gerstaecker for making a new species from a fly whose legs were deformed by fungoid growth ! It has also been taken near Vienna, and is probably a very widely spread species, but suitable localities for it are very uncommon, such as broad mud flats on which herbage and small pools exist at low tide, while the sea covers them at high tide.
2. *C. pusillus* Meig. : very uncommon. I caught a male at Lyndhurst on June 26th, 1872, and Haliday caught it in Ireland.
3. *C. scambus* Fall. : not so common as some of the following species, but I have taken it from Penzance to Aberdeen, and Mr. F. Jenkinson has taken it at Scilly. The middle legs of the male are very remarkable.
4. *C. curvipes* Fall. : the commonest species of the genus, occurring everywhere in suitable localities from at least Slapton Leigh to Aberdeen. Some specimens from Chippenham Fen are large and very dark legged.
5. *C. loripes* Hal. : only less common than *C. curvipes* from at least Lyndhurst to Sunderland. It is remarkable how seldom this common British species has been observed on the Continent.
6. *C. armatus* Zett. : I have not often met with this species, but I have taken it from Bournemouth to Nairn, and always on the coast near salt water. Some specimens taken at Aberlady on June 23rd, 1884, where it was very abundant, have the legs almost black or black-brown, the front and hind femora being brownish but the front coxæ always luteous.

7. *C. pectinulatus* Lw.: I caught several specimens of this species near Brandon in Suffolk on July 10th, 1877, but was not aware at the time that it was an interesting capture, and although I have since searched at what I believe was the original locality, I have not been able to find it again; Col. Yerbury however caught two males at Brodie on July 12th, 1904, so its distribution seems to be a wide one. I should have considered it to be *C. pumilio* Zett., only he says "femoribus posterioribus parce ciliatis."
8. *C. picticornis* Zett.: I caught one male at Pitsea in Essex on June 7th, 1894.

31. *ECTOMUS* Mik.

E. alpinus Hal.: distinct from all species of *Campsicnemus* by its silvery-white face, which practically disappears on its upper part just below the antennæ through the very close approximation of the eyes. It is not uncommon in the New Forest and I have taken it at Reigate in Surrey, while Col. Yerbury caught it at Brodie.

32. *TEUCHOPHORUS* Lw.

A very distinct genus of tiny flies, easily known in the male by the long black costal space.

- 1 (4) Hind tibiæ bent before tip, apical part being dilated and hairy with a long curved subapical spine beneath.
- 2 (3) Hind tibiæ with no long spine just before bending ...
1. *spinigerellus* Zett.
- 3 (2) Hind tibiæ with a long conspicuous spine just before bending...
2. *monacanthus* Lw.
- 4 (1) Hind tibiæ not bent before tip, apical part not dilated and bearing no long curved subapical spine.
- 5 (6) Hind tibiæ with a mamilla-like tuft of dark bristles behind about middle followed by some long thin bristles; middle tibiæ with two conspicuous bristles beneath4. *pectinifer* Kow.
- 6 (5) Hind tibiæ with only an equal fine ciliation of about ten small bristles; middle tibiæ with no conspicuous bristles beneath...4. *simplex* Mik.

T. calcaratus Macq. is almost certain to occur in Britain, and is allied to *T. monacanthus* and *T. pectinifer*, but the process about the middle of the hind tibiæ is spread out at its tip like a fan. *T. signatus* Stæg. is not yet well recognised, as the most important part of its description which is on page 3096 of Zetterstedt's Dipt. Scand., Vol. VIII has been overlooked, being in Danish. It must be very near *T. monacanthus*, but the long spine is apparently represented by two spines.

1. *T. spinigerellus* Zett.: I have numerous records from Hampshire to Cambs., but I have never met with it in abundance.
2. *T. monacanthus* Lw.: one male at Wisbech on July 14th, 1881, and another at Lyndhurst on July 17th, 1887. Neither specimen was recognised until many years after its capture.
3. *T. pectinifer* Kow.: so abundant about puddles on paths in a small wood near Three Bridges in Sussex on July 28th, 1872, that thirty or forty specimens might be swept up in one stroke of a net. It again occurred there and in other small woods in the neighbourhood ten years later.
4. *T. simplex* Mik: not very uncommon in the middle glade-way of the 40-Acre Wood in Chippenham Fen; first taken on August 26th, 1894.

33. *SYMPYCNUS* Lw.

- 1 (') Legs mainly black1. *cirripes* Walk.
- 2 (1) Legs mainly yellow.
- 3 (4) Front coxæ blackish-grey, at the utmost only just tip yellow...
2. *annulipes* Meig.
- 4 (3) Front coxæ all yellow, or only a small portion of base blackish-grey.
- 5 (6) Third joint of hind tarsi with a depressed thorn-like bristle beneath at tip; hind femora with a brown streak on upper-side...
3. *spiculatus* Gerst.
- 6 (5) Third joint of hind tarsi clothed behind with stiff bristly hairs, like the fourth joint; hind femora at most black at tip ...4. *æneicoxa* Meig.
1. *S. cirripes* Walk.: not uncommon in the Lake District and at Braemar.
2. *S. annulipes* Meig.: exceedingly common everywhere from Padstow to Tongue.
3. *S. spiculatus* Gerst.: Mr. F. Jenkinson has taken this new species to Britain in some numbers at Cambridge and Old Chesterton from May 17th to August 2nd in 1901-2-3.
4. *S. æneicoxa* Meig.: common in the Lake District and in the Scotch Highlands, though I have taken it at Thetford in Suffolk. I very reluctantly accept Meigen's name for this species because he says "Hülfglieder alle schwärzlich" as the name denotes, which would only refer to *S. annulipes*, and consequently I should prefer to retain Zetterstedt's name of *nigritibialis*.

(To be continued).

In Memoriam.

J. W. DOUGLAS.

We again regret to have to record the death of one of our Staff, and this time of our oldest member : J. W. DOUGLAS died at Morningside, Craven Park, Harlesden, N.W., on the 28th instant, in his 91st year.

A full Obituary Notice will be given in our next Number, and in the meanwhile we must ask our readers to accept this brief announcement.

August, 1905.

QUEDIUS VARIABILIS, HEER: AN ADDITION TO THE
BRITISH LIST OF *COLEOPTERA*.

BY E. A. NEWBERRY.

Among some insects recently sent to me for examination by Mr. Kidson-Taylor was a specimen of a *Quedius* unknown to me. I was, however, able to refer it without difficulty to *Q. variabilis*, Heer (*teste* Muls. et Rey).

The moderate-sized eyes and bilobed labrum place the insect in the second section of the genus (*Quedius verus*). The black elytra will prevent its being mistaken for any British species in the section, except *mesomelinus*, Marsh., and *nigrocæruleus*, Rey. From these it may be separated thus:—

- A. Thorax with two or more accessory punctures, placed obliquely on each side of disc, in addition to the usual rows.
 - a. Elytra blue-black; thorax with three or four accessory punctures; first joint of posterior tarsi subequal to last; size larger...
Q. nigrocæruleus, Rey.
 - aa. Elytra black without bluish tint; thorax with two accessory punctures; first joint of posterior tarsi shorter than last; size smaller...
Q. variabilis, Heer.
- AA. Thorax without accessory punctures (elytra almost invariably pitchy, paler at suture and apex) *Q. mesomelinus*, Marsh.

The following is a translation of Rey's diagnosis (*Brevipennes*, *Staphyliniens*, 505):—

“Elongate, little convex, scantily pubescent, shining black, with the apex of palpi and the tarsi more or less reddish. Head scarcely shagreened or punctured. Thorax shining, suborbicular, rather narrowed in front. Scutellum smooth. Elytra moderately, strongly and densely, abdomen a little more finely, punctured. The first joint of the posterior tarsi a little less long than the last.”

“OBS.—It is of the form of *mesomelinus*, from which it differs in its palpi, its antennæ, its darker legs and ventral abdominal segments, the dorsal segments being less iridescent, and especially by the thorax having two punctures on the sides of disc, and the temples punctured at the base.”

Canon Fowler refers to this insect as possibly mixed with *mesomelinus* in collections (Brit. Col., II, 234). In the last European Catalogue (1891) the insect is given as a var. of *Q. ochripennis*, Mén., = *puncticollis*, Th.; but in Mr. Kidson-Taylor's specimen, apart from colour, the antennal joints are much less transverse than those of *Q. ochripennis*. The punctuation of the elytra is very different to that of *Q. mesomelinus*, being much closer and deeper. *Q. variabilis* certainly appears to be as good a species as some others in the section.

The unique example was taken in Sherwood Forest by Mr. Kidson-Taylor in October, 1904, in rotten fungus, in company with *Q. xanthopus*, Er.

12, Churchill Road,
Dartmouth Park, N.W. :
July 29th, 1905.

ANISOTOMA OBLONGA, Er.: SYNONYMICAL NOTES.

BY G. C. CHAMPION, F.Z.S.

The insect somewhat doubtfully introduced into the British list under the above name by Rye (Ent. Mo. Mag., vii, p. 180, and x, p. 149), whose description of the male was taken from a specimen found by myself at Farnham, Surrey, in 1875, was incorrectly identified, and is really referable to *A. lucens*, Fairm. It belongs, in fact, to a different section of the genus, and is easily separable from the members of the *A. cinnamomea*-group by the short row of punctures at the base of the ninth elytral interstice (a character overlooked by Rye) and the peculiar armature of the posterior femora of the male. This last-mentioned structure is well shown in Jacquelin-Duval's figure (Gen. Col., I, t. 36, fig. 179b): the apical tooth is obtuse (instead of being sharply hooked) and the median tooth is very large and angular. In Mr. E. Saunders' collection (from that of Dr. Capron) there is also a fine male of *A. lucens*, probably taken near Shiere, Surrey, agreeing perfectly with my own example from Farnham.

A. oblonga, Er., and *A. grandis*, Fairm., are properly treated as synonymous by Canon Fowler; both are forms of *A. cinnamomea*, Panz. The *A. grandis* of Rye appears to differ slightly from the continental specimens, and the name *anglica*, Rye, is available for this variety if required. *A. cinnamomea* and *A. anglica* occur constantly in the same localities (Mickleham, Caterham, Cobham Park, &c.), and there can be no doubt that they are forms of one very variable species. I am indebted to Dr. A. Fleischer, of Brünn, for calling my attention to this matter, and also for a male specimen of the true *A. oblonga*, Er., for comparison.* He has, moreover, examined the

* Dr. Fleischer informs me that *A. algerica*, Rye (the type of which is in my possession = *A. heydeni*, Ragusa, differing from it merely in colour. Rye's name has five years' priority. This insect is found in Algeria, France, and Sicily.

genitalia of a British *A. anglica* and finds that they do not differ in any way from those of *A. cinnamomea*.

Fairmaire's types of *A. lucens* (♂ and ♀) were from the Forest of Bondy. Ganglbauer states that it is found very rarely in France, Holland, the Eastern Alps, Bohemia, and Hungary.

Horsell, Woking :

August 16th, 1905.

NOTES ON TACHINIDÆ. No. 1.

BY COLBRAN J. WAINWRIGHT, F.E.S.

Notes made upon various *Tachinidæ* from time to time having accumulated I have thought it better to bring them together within the compass of a single paper. The final determining factor was the opportunity afforded me of clearing up an interesting problem connected with the genus *Micropalpus* by means of a collection of those insects specially made for the purpose by Col. Yerbury in Scotland last year. The result of my examination of his captures was to enable me to decide with certainty that the northern representative of the southern black species *pudicus*, Rdi., was quite distinct from that species. The result is not an actual addition to the British list, as Mr. Verrall included it under the name *pictus*, Mg., in his last list (1901) on account, I believe, of my expressed opinion that a few odd specimens taken by Col. Yerbury at Aviemore in 1899 were that species. The question, however, remained in doubt, as there were not sufficient specimens taken then to make its distinction from *pudicus* a certainty, and Col. Yerbury himself believed them to be specifically identical, so that he made a point of collecting a long series of them last summer, in order that a decision might be arrived at.

When Verrall published his 1888 list there were but two certainly known British species of the genus, *vulpinus*, Fln., and *comptus*, Fln. (= *fulgens*, Mg.). Meade, in 1891, in his Annotated List of British *Tachinidæ* (Ent. Mo. Mag., 1891, pp. 90-91), added a third name—*hæmorrhoidalis*, Fln.; this, however, was on the strength of one specimen only without locality, which was but doubtfully British, so that whatever species Meade had before him the record must be ignored. Since then *pudicus*, Rdi., has become well known as British, and has been recorded by Mr. E. E. Austen in the Ent. Mo. Mag., vol. xxxiv, pp. 36-8; so that the present addition gives us four

clearly defined, properly known, British species of this genus. As the works in which they are described are none of them English, and some of them difficult of access, it may be worth while giving a table and short description of them here. They may be arranged as follows :—

- Species with yellow femora and tibiæ.....*vulpinus*, Fln.
- Species with black legs (tibiæ sometimes brownish) A.
- A. Species with bright reddish middle streak on frons...*comptus* (Fall.), Rdi.
- Species with black middle streak on frons B.
- B. Species with 7 bristles on 3rd longitudinal vein near base ; with bristly genæ ; and with reddish genitalia in male...*hæmorrhoidalis* (Fall.), Rdi.
- Species with 13 bristles on 3rd longitudinal vein near base ; with fine hairs only on genæ ; and with black genitalia in male.....*pudicus*, Rdi.

Vulpinus is the commonest of these species. I have seen it in thousands in Wyre Forest, Worcestershire ; Col. Yerbury found it commonly in the north of Scotland last year, and I have taken it or seen it from Cornwall, Norfolk, and various intermediate localities, and believe it to be generally distributed. It is unmistakeable, its yellow legs and the general yellow effect of the insect proclaiming it at once.

Comptus I do not know. I believe it to be very rare. Mr. Austen records two specimens only in the British Museum collection from localities as far apart as Cromarty and Surrey (Ent. Mo. Mag., 1898, p. 38). Meade and F. Walker both say rare, without giving localities, and I have never come across it myself. It should be readily distinguished by its bright red or yellow central streak to the frons, in this respect resembling *vulpinus*, from which, however, its black legs and much darker appearance would at once separate it. Brauer and von Bergenstamm say that it has orbital bristles in the male sex (Die Zweiflügler des Kaiserl. Museums zu Wien, iv, p. 65) ; Meade (Ent. Mo. Mag., 1891, p. 91) says it has not even hairs on the genæ, which would be a good character, if true, as *vulpinus* and *pudicus* have abundance of fine long hairs, and *hæmorrhoidalis* has bristles. This species was known as *fulgens*, Mg., by Schiner, Walker, and Meade, and was so called in Verrall's first list ; it seems now, however, to be considered identical with *comptus*, Fall., and is certainly the same that Rondani recognised as that species. Fallén spelt it *comta* by the bye, so that some choice of names is open to us.

Pudicus is apparently not uncommon in the south, as I have it from Colchester, Bexley, Farningham, and Lamorbey, and Austen

(*loc. cit.*) gives Felixstowe, St. Osyth, Essex, and Bearsted, Kent. It seems to have been unknown to Schiner, Walker, and Meade, and in fact Rondani appears to have been the only author who did know it, so that there is no synonymy.

It and *hæmorrhoidalis* are very closely allied, but there are abundant and constant, though slight, differences. The most useful and constant character of all lies in the number of fine setæ at the base of the 3rd longitudinal vein. These in *hæmorrhoidalis* are normally seven in number, and in *pudicus* thirteen. It must not be forgotten that frequently some of these get rubbed off, but still the character will almost always be found sufficiently recognisable, especially as the seven in *hæmorrhoidalis* are packed closely together at the base of the vein, and in *pudicus* they are spread out almost to the small cross vein. Another constant and good character lies in the fact that the hairs on the genæ of *hæmorrhoidalis* are sufficiently robust to be described as bristles, while in *pudicus* they are fine and down-like, though long. In the male sex the possession of brown or reddish genitalia in *hæmorrhoidalis* and black ones in *pudicus*, is an instantly recognised character. The length and width of the 3rd joint of the antennæ differs in the males of the two species; in *pudicus* the length is to the width as $2\frac{1}{2}$ to 1, and in *hæmorrhoidalis* as $1\frac{3}{4}$ to 1. The palpi in *pudicus* are shorter and perhaps a little thicker than in *hæmorrhoidalis*; in *pudicus* they are barely as long as the 3rd antennal joint is wide; and in *hæmorrhoidalis* they are distinctly longer (and in this species the 3rd antennal joint is also wider than in *pudicus*). These characters, however, of the antennæ and palpi are less constant than the before-mentioned characters, and not so useful.

Hæmorrhoidalis is common in the north of Scotland, according to Col. Yerbury, and the specimens I have examined (which were thirty-five in number) came from Aviemore, Nethy Bridge, and Brodie; in addition to which I took a couple of males myself at Rannoch in 1902. The synonymy is most complicated and uncertain. *Hæmorrhoidalis* was first described by Fallén, but his description by itself is of course inadequate. The species which Schiner recognised as *hæmorrhoidalis*, Fall., is certainly not our species, but the one which he describes as *pictus*, Meig., is; on the other hand, the species which Rondani regarded as Fallén's species is almost certainly the same as our own. Brauer and von Bergenstamm (*Die Zweiflügler des Kaiserl. Museums zu Wien*, pt. v, p. 104) seem to consider that Rondani is right, whereupon they proceed to mix up the synonymy terribly by using the name *pictus*, Mg., for Fallén's and Rondani's

species with *hæmorrhoidalis*, Fall., as a synonym, and using the name *hæmorrhoidalis* for Schiner's species, which they consider the same as Meigen's *hæmorrhoidalis* and Rondani's *impudicus*. Now I am unable to decide from the mere descriptions what species Fallén and Meigen had before them, but accepting B. and B.'s interpretations, which certainly seem to me to be the most likely ones (and I have carefully read all the descriptions), then the name *hæmorrhoidalis*, which was Fallén's original name, must remain for his and Rondani's species, and *pictus*, Meig. and Sch., must sink as a synonym; while for the other species Rondani's name *impudicus* must stand; I therefore work out the synonymy in brief of the two species as follows:—

Hæmorrhoidalis, Fallén, Rondani, non Meig., Schiner, = *pictus*,
Meigen, and Schiner;

Impudicus, Rondani, = *hæmorrhoidalis*, Meig., Schiner;

and our species will then be *hæmorrhoidalis*.

Ræselia. I think I have also been able to clear up certain doubts regarding the species in this small genus. Fallén, in his *Diptera Succie* "Muscidæ," p. 22, described the original species *pallipes*, which had a complete 4th longitudinal vein, that is to say, the apical portion which turns up to meet the 3rd longitudinal vein was present, and fully developed. He referred to what he called "Var. β ♀. *Monstrosa*," which had this apical portion of the 4th vein missing, so that the vein ceased just before reaching the angle of the upward bend. Meigen, in his "System. Beschreib. der bek. europ. zweiflüg. Insekten," vol. iv, pp. 411–2, copies Fallén's description of *pallipes*, and raises the var. to specific rank under the name *antiqua*. He evidently knew the form with the restricted 4th vein well, and did not know the other one at all. Since then most authors seem to have believed that there was only one species (owing to the fact that they have perhaps only met with one), but with so simple a history it is singular how many mistakes have been made in the synonymy. Rondani had it right, but Zetterstedt seems to have started the mistakes, as in the *Diptera Scand.*, p. 1050, he sinks the earlier name *pallipes* under the later name *antiqua*, giving, however, the correct references; Schiner follows his example in the *Fauna Austriaca* I, p. 516: in his "Catalogue of European *Diptera*" he, however, omits the name *pallipes* altogether, and actually assigns the later name *antiqua* to Fallén. This mistake has been repeated by Brauer and von Bergenstamm, who in the before-mentioned work, vol. v, p. 410, in the list of the species of *Tachinidæ* known to them,

give only *antiqua*, Fall., and in the body of the work, vol. iv, p. 104, quote *antiqua*, Meig., as the type of the genus, without in either case referring to *pallipes*, Fall., at all. Meade recognised the mistake in his Annotated List before referred to, and corrected the synonymy; Verrall, in his first list, copies Schiner, and refers *antiqua* to Fall., and in his second list adds *pallipes* as a synonym, ascribing both to Fallén. All this discussion, however, is somewhat by the way, as in addition to the mistakes about the synonymy, I feel sure that these authors are wrong in uniting the two species. I have for some time had one or two odd specimens of *Ræselia* put on one side, with notes to the effect that they might be the true *pallipes*, Fallén, and the fortunate capture of a pair *in cop.* by Dr. J. H. Wood has convinced me that we have two distinct species in this country, presumably *pallipes*, Fall., and *antiqua*, Meig. Of these two species *antiqua*, Meig. (*i. e.*, the one with abbreviated 4th vein), is fairly common, and I have a good series; the other, *pallipes*, Fall. (with complete 4th vein), seems to be very rare; at present I have only seen 5 ♂♂, and 2 ♀♀ altogether, and as ill fortune will have it, both the females happened to be greasy, so that one or two points remain uncertain. The distinctions between the two species are as follows:—

Antiqua, Mg. Antennæ in both sexes with 3rd joint black, and 2nd joint bright fulvous; abdomen in both sexes unmarked, excepting by the black dots upon which the bristles stand; scutellum with yellow edge; base of wings bright fulvous.

Pallipes, Fall. Antennæ in the male same as in *antiqua*, but in the female bright yellow throughout; abdomen marked with a distinct dark band on hinder edge of each segment, these are slightly interrupted, and about one-fourth the width of the segments (unfortunately the females being greasy I cannot tell if they are the same in this respect as the males); scutellum entirely grey (I anticipate that this may not prove a constant character, but it is so in all I have seen); wings not bright fulvous at base.

On the whole *pallipes* is a smaller insect, but the largest I have is as large as the smallest *antiqua*; moreover, it is a greyer and darker insect, but here again extreme specimens of the two species are alike.

The seven specimens of *pallipes* referred to above come from:—Stoke Wood, 6.5.03, Dr. J. H. Wood (the pair *in cop.* referred to above); Ashperton Park, 30.4.04, ♂, Dr. J. H. Wood; Ipswich District, 3.5.02, ♂, 9.5.01, ♀, Claude Morley; New Forest, 2 ♂♂, bred from larvæ of *Tæniocampa miniosa*, F., April, 1897, J. W. Moore. It will be noticed that all these dates are early, while *antiqua*, so far as I know, occurs in July and August.

I think *pallipes* is probably a northern insect, and that since Fallén originally described it no one else has met with it till now.

People who love to alter names have their chance here. The genus *Rorselia* was founded by Robineau Desvoidy (Myodaires, p. 145), the *only* generic character he gives being the *absence* of the apical portion of the 4th vein. He ascribed four species to the genus, all the names being quite new, in accordance with his usual custom; he afterwards (Ann. de la Soc. Ent. de France, 1848, p. 447) considered his *arvensis* to represent *antiqua*, Meig., but probably all his four species represent but one true species, being founded on trivial individual differences. Under the circumstances no one could be blamed for rejecting the name *Rorselia*, still it is probably more convenient to keep it. Moreover, the name *pallipes*, Fall., might be rejected for my species, for Fallén *says* that he is describing a *female*, and gives it a pale 2nd joint only to the antennæ; moreover, he says the scutellum is testaceous. As I have already written the latter character may prove inconstant, and as for the former one it is extremely likely that Fallén had a male before him, as the males in this genus possess most of the characters usually confined to the females in the *Tachinidæ*, and look very like females in every way, so that he may be readily excused for making such a mistake; anyway, it is a nice point which is open to discussion; in the meantime, however, I prefer to retain the old names, the use of which can lead to no confusion.

Genus *Erigine*. Mr. E. E. Austen's article on this genus in the Ent. Mo. Mag. for March (pp. 57—60) is very interesting; *pectinata*, Girschner, is a very distinct and fine addition to the British fauna; and being an insect which is very little known at present, it is to be hoped that Col. Yerbury or Dr. Wood will succeed in obtaining further specimens, including males, so that we may get to know it better. *Truncata*, Ztt., is another well marked species which, however, is not strictly speaking new to us. It is true that Dr. Meade says that his *appendiculata* had an entirely black scutellum, but apart from the fact that Dr. Meade unfortunately made many mistakes, dark specimens of all these species occur in which the red apex is so reduced as not to be noticeable; moreover, nothing else is known which his species could have been, so that in the absence of further evidence it seems most probable that he had a specimen of *truncata*, Ztt., before him. *Truncata* is well known to me, and I have always considered it identical with the *appendiculata* of Meade and of Verrall's list, so that I have not regarded it as new to Britain. My own specimens (four females) were taken in Sutton Park at hawthorn blossom. Dr. Wood has taken it in Herefordshire, and Mr. R. C.

Bradley at Moseley. It is another question whether *appendiculata*, Mcq., is the same as *truncata*, Ztt. Mr. Austen quite correctly points out that Macquart's figure of his species shows antennæ quite unlike those of our *truncata*, but Macquart's drawings are very bad, and his descriptions are so short and insufficient that they might be applied to almost any allied species; and certainly his *appendiculata* is not diagnosed sufficiently for identification. I should say that neither his drawing in this particular case nor his description prove anything one way or the other, and it is immaterial whether we regard *appendiculata* as a synonym of *truncata*, or ignore it altogether.

With regard to the species which Mr. Austen says he has been calling *rudis*, Fall., and which he says is like the true *rudis*, *fide* B. and B., but smaller, with slightly different fore tarsi, &c., this is without doubt what I have been calling *nemorum*, Meig. In my experience it is a rare insect, and I have but four females, which were taken at West Hide, Herefordshire, in May, 1899, and I do not remember having seen any others. One of these specimens I sent to Prof. Brauer, and he returned it to me confirming my identification of it as *Panzeria nemorum*, Mg. They answer to Mr. Austen's description of the British Museum specimens, and like them have a reddish scutella. Mr. Austen has perhaps overlooked Brauer's note on p. 532 of the paper he refers to (S. B. K. Akad. Wiss. Wien, math.-naturw. Cl. Bd., cvii, 1898), in which he mentions this species, expressing some doubt whether it is specifically different from *rudis*, Fall., and remarking that the scutellum is often black, and was so in Meigen's type specimen, and pointing out that the principal character lies in the difference in the shape of the fore tarsi; *nemorum* having the first joint much longer than broad, while *rudis* has it about the same length as width, the other joints being all larger in proportion to width in *nemorum* than in *rudis*.

While on the subject of the genus *Erigone* I may as well call attention to the fact that this name cannot be continued for the genus, but that we must now use *Varichæta*, Speiser. *Nemoræa* was the name by which all those insects now included in Brauer and von Bergentamm's section *Erigone* were known till recently. This name was originally founded by Robineau Desvoidy for half a dozen of his usual new names, three of which have since been identified with *pellucida*, Meig. (*conjuncta*, Rdi.); Meigen (Sys. Bes. bek. europ. zweiflüg. Ins., vol. vii, p. 221), and Macquart (Ann. de la Soc. Ent. de France, 1848, p. 104, *et seq.*), used the name not only for *pellucida*, but unite with

it a great number of species now assigned to several genera. Schiner, Verrall, and others followed their example, but Rondani (Dip. It. Prodr., iii, p. 72) and Brauer and von Bergenstamm (Zweifl. des K. Mus. zu Wien, iv, 116) have restricted it to *pellucidus*, Meig. (*conjuncta*, Rdi.), and its allies, and as these are now separated widely from the rest of Meigen's genus *Nemorea*, including the species now under consideration, and do not appear to be British, we have done with that name in this connection. *Erigene*, another of Robineau Desvoidy's genera, which he founded for eight new species, six of which are given as synonyms of *radicum*, F., by Schiner was selected by Brauer and von Bergenstamm as the name to take its place, not only for their restricted genus to which *radicum* belongs, but also for the section or supergenus which includes *rulis*, Fall., *cæsia*, Fall., and most of the species which Schiner, Verrall, and other recent writers put in the genus *Nemoræa*, *sens. lat.* This would have done nicely, but unfortunately it had been used before for a genus of spiders, and so Speiser (Berl. Ent. Zeit., 1903, p. 69) proposes the name *Varichæta*, which I suppose we must now use.

Since the publication of Mr. Verrall's last list of British *Diptera* in 1901 I have already noted a considerable number of additions to the British fauna; some of these have been already recorded, and a greater number I do not consider ripe for recording, but I take advantage of this article to mention the following:—

Viviania cineræa, Fln., in italics in the list, has been taken by Dr. J. H. Wood at Checkly, Herefordshire, 15.VII.99.

Exorista. This is a very difficult genus, and I have several additions, but they may easily be wrongly identified, so that for the present I will only just mention their names tentatively: *grossa*, B. and B.; *intermedia*, B. and B.; *glirina*, Rdi.; *fugax*, Rdi.; and *antennata*, B. and B.; and *agnata* (Rdi.), S., which is in italics, I can confirm. As a matter of fact I believe all these to be correctly named, but if preparing a list like Verrall's should adopt his plan of "italics" for the sake of caution.

Tricholyga major, Rond. A distinct species, of which I have both sexes, and half a dozen specimens bred from larvæ of *Saturnia pavonia*, L., found in Sutton Park.

Ptilops nigrita, Fall., a distinct little species, similar to, but much smaller than, *chalybeata*, Meig., which will probably prove not uncommon. I have not seen many specimens yet, but Dr. Wood seems to find it not uncommon, as he has taken it on several occasions and in several localities in Herefordshire (Cusop Dingle, Haugh Wood,

Shobdon, Doward, &c.), and to his kindness I owe four specimens in my collection. I have also seen a specimen taken by the Rev. T. A. Marshall at Teignmouth.

Phytomyptera nitidiventris, Rdi., a distinct little species taken by Mr. R. C. Bradley at Barmouth in 1901, and by Dr. Wood at Stoke Wood, Herefordshire, on 11.7.02.

Craspedothrix vivipara, B. and B. This species I have referred to in my list of the *Diptera* of Warwickshire in the Victoria County Histories, Mr. R. C. Bradley having taken it at Moseley. I have also had it sent to me by Rev. W. J. Wingate from Bishop Auckland, 20.7.00, and by Dr. J. H. Wood, who has taken nine specimens at Tarrington and Stoke Wood, Herefordshire, at various times.

Thryptocera frontalis, Mcq. This species, which Dr. Wood recorded as British as recently as January, in the Ent. Mo. Mag., 1905, p. 7, from specimens taken by him in Herefordshire, at Shobdon Marsh, was taken by myself in Wyre Forest, in July, 1901, when I obtained a little series.

45, Handsworth Wood Road,
Handsworth, Staffordshire :
March 26th, 1905.

Rhopalomesites tardyi, Curt., in the Isle of Man.—I met with a number of specimens—both male and female, and of very varying sizes—of this species at Ballaclague, Kirk Arbory, Isle of Man, in June and July, 1903, and May, 1904, under bark of dead ash trees. An example of the pupa occurred in the soft rotten wood of one of the stumps, but I did not succeed in rearing it. At Ballakeigan in the same parish there are numerous borings of the beetle in a row of old pollarded hawthorn trees, and my friend Mr. R. W. Teare obtained one example of the beetle in this locality.

The presence of this interesting wood-feeder in the Island suggests some reflection on trees in the Isle of Man from the point of view of the Coleopterist. We can definitely commence our consideration of the present flora and fauna of the Isle of Man subsequently to the Glacial period, during which some Geologists hold that an immense ice sheet covered the Island, all traces of the pre-existing flora and fauna being scraped away and destroyed. Another theory postulates the presence of an icy sea crowded with icebergs having covered the Island during the Glacial period. In either case, a complete restocking of the flora and fauna must have taken place after this period. The Irish Elk reached the Island—whether by land connection or across an ice sheet is a hotly debated question amongst Geologists—probably during the late Glacial or early post-Glacial periods, its remains having been found in the basins of fresh water marl in the “curraghs,” in every case underlying the layers of peat. It may perhaps have lingered into the age of forests when the principal peat bogs of the Island were accumulated. In the peat of the curraghs in the north and in the central valley between Peel and Douglas, and more sparingly

in the peat on some of the hillsides, remains of trees are found of the ancient forests which succeeded the early post-glacial period. Oak and fir, in some cases of large size, and hazel are the commonest, but ash, walnut, holly, and black alder also occur. There are likewise remains of an ancient submerged forest on the seashore near Poolraish, oak, ash, and fir having been exposed at low tides after storms. These ancient forests must have long ago disappeared—certainly before historic times. All evidence tends to show that in historic times trees have always been very scarce in the Island. The oldest are some planted by Bishop Wilson at Bishop's Court less than 200 years ago. Wood was always scarce for building purposes, and until coal came into more frequent use peat was the universal fuel. In 1629 a statute was enacted entailing severe penalties for damaging any tree or shrub. Trees play but little part in Manx folklore, and such superstitions connected therewith may have been brought by the ancient Celtic wave of immigration from forest covered lands, or in some cases to the later Norse influence. The Manx place names are rarely connected with the presence of trees or woods; there are a few of Celtic origin, such as Glen Tramman (Eldertree Glen), Glen Darragh (Oak Glen), and Glen Unjin (Ash Glen). Of the Scandinavian place names we only have Dalliot (dalar-holt = Dale Wood) and Little London, supposed to be a corruption of lítill-lundr = Little Grove. Kirk Arbory at first sight suggests trees, and in fact misled Governor Sacheverell, who, in "An Account of the Isle of Man," 1702, explains that it was so called from the number of trees there formerly. In reality it was called after Saint Carbery, the parish originally in Manx being Skeeylley Carbre, Skeeylley being later on changed to Kirk, derived from the Scandinavian "Kirkja," and the initial "C" being dropped in course of time.

At the present time there are but 826 acres of woodland out of a total acreage of 145,235. Some of the mountain slopes in the north near Ramsey are well wooded, both with conifers and deciduous trees. On the Crown lands on South Barrule and Greeba Mountains and at Archollagan there are some few hundred acres of Scotch fir planted in recent years by the Insular Government.

The sheltered sides of many of the glens are wooded, some, such as Glen Rhenass and other pleasure resorts, having been planted in recent years. In the neighbourhood of many of the larger farmhouses there are small plantations, chiefly of ash—orchards as they are locally called—whilst round every old cottage one finds the trammon tree (elder) in accordance with the old belief in its powers of warding off witchcraft from the inmates. What one misses in the landscape, as compared with most English counties, is hedgerow timber, the boundary fences usually consisting of stones, earth, and sod grown over with gorse and bramble, whilst, owing to there being no very large estates with attendant parks, fox hunting and game preserving, coverts for foxes and pheasants are not required.

Ash is the prevailing tree in the Island, beech and sycamore are frequent in the glens, oak, elm, and mountain ash being less frequent, whilst birch, hazel, and poplar are rare. Large willows are to be met with near some of the rivers, together with an occasional alder. In the curraghs there are numbers of willow bushes. Holly, blackthorn, hawthorn, wild cherry, bird-cherry, and crab-apple are present, but not in any numbers.

Whether *Rhopalomesites tardyi*, Curt., existed in the age of forests it is

impossible to say, or if so, whether it afterwards made a precarious but continued occupation is doubtful. It is very likely that it has been introduced with trees from Ireland during the last century, just as *Pissodes notatus*, F., and *Rhinomacer attelaboides*, F., and other species, have been introduced into England since the re-introduction of the Scotch fir during the last 200 years, this tree having in past ages been indigenous both in England and Ireland, but afterwards having disappeared.—J. HAROLD BAILEY, Port Erin, Isle of Man: November 1st, 1904.

Coleoptera from Berkshire.—On account of pressure of work this summer I have had few chances of visiting my favourite districts of Streatley and Wellington, College, *Agathidium nigripenne*, Kng., being the only species new to the former district, and *Phyllobrotica quadrimaculata*, L., and *Amphotis marginata*, Fr., to the latter. I have, however, searched some small copses and water meadows close to my house more systematically than before, and several species new to the neighbourhood have been taken, mostly by evening sweeping, viz: *Anisotoma parvula*, Sahlb., *Cyrtusa paucilla*, Schmidt, *Hydnobius strigosus*, Schmidt, *Ephistemus globosus*, Waltl, *Antherophagus pallens*, Gyll., *Telephorus figuratus*, v. *scoticus*, Sharp, and *Liosoma oblongulum*, Boh. *Eryx ater*, F., was taken in July from a hollow ash tree, and *Balaninus betulae*, Steph., a few days ago crawling on the breakfast table.—NORMAN H. JOY, Bradfield: August 7th, 1905.

Osphya bipunctata, F., near Peterborough.—On May 19th, 1905, I captured a fine Heteromerous beetle, which I took for a variety of *Nacerdes melanura*, though without the black tip to the elytra; but having referred it to Mr. W. Holland, that gentleman greatly gratified me by returning it as a very large example of the female of *Osphya bipunctata*, F.—C. T. CRUTWELL, Ewelme Rectory, Wallingford: July 29th, 1905.

Notes of Coleoptera captured during a tour through Sutherlandshire and at Aviemore, Inverness-shire, in the month of June, 1905.—The species, among many others, kindly verified for me by Mr. W. Holland, are from Sutherlandshire, unless otherwise noted. *Cicindela campestris* (not uncommon), *Elaphrus uliginosus*, *Nehria gyllenhalii*, *Amara lucida*, *Calathus flavipes*, *C. mollis*, *C. melanocephalus*, var. *nubigena* (Aviemore), *C. micropterus*, *Pterostichus versicolor* (dark form), *P. vitreus*, *Bembidium bipunctatum*, *B. fluviale*, var. (Aviemore), *B. tibiale*, *B. saxatile* (dark form, Aviemore), *B. atrocæruleum* (Aviemore), *B. paludosum* (Aviemore).

Among *Staphylinidæ* I saw at Aviemore, but somehow lost, a specimen of *Staphylinus erythropterus*; *Philonthus sanguinolentus* (dark form, Aviemore), *Stenus guttula* and *S. cicindeloides* (Aviemore), *Anthrophagus testaceus*, *Geodromicus globulicollis* (Aviemore), *Parnus auriculatus* (Aviemore), *Cytilus varius*, *Coccinella oblongoguttata* (Aviemore), *C. 11-punctata*, var. *confluens*, *Geotrupes putridarius* (very small), *Aphodius depressus*, *A. fætulus*, *Hoplia philanthus* in profusion on June 4th, *Cryptohypnus maritimus* and *C. dermestoides* (both at Aviemore), *Corymbites cupreus*, *C. quercus*, with var. *ochropterus* (Aviemore), *Podabrus alpinus*, *Telephorus nigri-*

cans, *T. hæmorrhoidalis* (Aviemoire), *Rhagonycha limbata*, *R. elongata* (Aviemoire), *Asemum striatum*, *Meloe violaceus* (Aviemoire), *Donacia sericea*, *Chrysomela staphylæa*, *Prasocuris aucta*, *Polydrusus cervinus*, *P. pterygomalis*, *Phyllobius calcaratus*, *P. maculicollis*, *Dorytomus tortrix*, *D. costirostris*, *Orchestes saliceti*, *O. rusci*, *Cæliodes rubicundus* (Aviemoire), *Ceuthorrhynchus cyanipennis* and *C. hirtulus* (both at Aviemoire), *Pissodes pini* (Aviemoire).

My attention was mainly given to *Lepidoptera*, but the above list shows how varied is the Coleopterous fauna of these northern regions, even in the beginning of summer, when, owing to the keen N.W. winds, it was hard work collecting, and fires within doors were indispensable. After the 10th the weather became much warmer, and *Lepidoptera* began to appear in some numbers; so the search for *Coleoptera* was discontinued.—ID.

Apteropeda orbiculata, Marsh., and its food-plants.—M. Bedel, in his excellent work (Coleop. du bassin de la Seine, v, 283), gives *Rhinanthus hirsutus* as the food-plant of *A. orbiculata*, and expresses his strong doubts as to the species being polyphagous. Kaltenbach (Pflanzenf., 373) attributes the yellow larvæ found on *Plantago* and *Teverium* to *A. orbiculata*; but M. Bedel (*op. cit.*, 204, footnote), in referring to this opinion, considers it to be a mistake. While searching for *Ceuthorrhynchidius dawsoni* on the coast near Plymouth, by pulling up and shaking *Plantago maritima*, I found *A. orbiculata* in some numbers; the larva was not to be seen, but one specimen was found near a pupa-case, from which it had evidently recently emerged. It would seem that Kaltenbach is correct as regards *Plantago*. No species of *Rhinanthus* was to be seen. *R. hirsutus* is, I believe, not a British plant.—E. A. NEWBERY, 12, Churchill Road, Dartmouth Park, N.W.: August 15th, 1905.

[My own experience with *A. orbiculata* is that it most frequently comes off *Nepeta glechoma*, especially the short growth of this plant in woodland paths and "rides."—J. J. W.]

Note on the Elater æthiops, Lac., of British collections.—M. H. du Buysson in his work on the *Elateridæ* (Faune Gallo-Rhénane, Élat., p. 192), now in course of publication in the "Revue d'Entomologie," has pointed out that the *Elater æthiops* of British collections is really referable to *E. nigerrimus*, Lac., and this change will have to be made in our lists. *A. æthiops* is a larger and duller insect, with the prothorax more coarsely and more densely punctate, and distinctly hollowed down the middle posteriorly, the elytra less rapidly narrowed from the base, &c. *E. nigerrimus* has the prothorax somewhat sparsely punctate, with the interspaces shining, and the disc scarcely hollowed down the middle posteriorly. *E. æthiops* is mainly found in mountainous districts, in pine, spruce, or larch, though it is said to sometimes attack oak and beech; I have found it in numbers in the Tyrol, Switzerland, and North Italy, in decaying pines and in sawpits, sometimes in company with *E. nigrinus*. *E. nigerrimus* is found in decaying oaks, and the only locality given by Fowler is Windsor Forest; I have beaten it from oak at Bejar, Spain.—G. C. CHAMPION, Horsell, Woking: August 17th, 1905.

Abraxas grossulariata var. *varleyata* at Huddersfield.—This magnificent form which was first bred at Huddersfield by the late Mr. James Varley, so long ago as 1864, has not been much seen or heard of for a good many years. Last season, however, a working man collected a large quantity of larvæ from old gardens, and was fortunate enough to breed eleven examples of it. This year the same man, and a friend of his, have bred respectively four and fifteen, making thirty specimens for the two seasons. The man who bred the fifteen told me they were the produce of some 4000 pupæ, the immense majority of moths from which were of course quite ordinary, though besides the *varleyata* there were some other very beautiful and remarkable forms. I may add that a number of the *varleyata* have found their way into my own cabinet, and one of them is more nearly a black specimen than any I have ever seen, as the white streak near the base is exceptionally narrow, and does *not* extend through the wings as is usual in the variety.—GEO. T. PORRITT, Edgerton, Huddersfield: August 4th, 1905.

Dichrorampha flavidorsana, Knaggs, = *D. questionana*, Zeller, at Folkestone.—On the evening of the 28th July, whilst being wheeled round my garden, I observed a number of little Tortricæ flying over a clump of Tansy, and, on securing some of them, identified them as my *D. flavidorsana*, a decision in which Mr. Purday subsequently agreed. I believe that this once overlooked species will prove to be an abundant insect, and also probably widely distributed.—H. G. KNAGGS, Folkestone: August, 1905.

Curious dates of emergence.—In August, 1904, I collected at La Granja (Spain) a few larvæ which were common on a beautiful species of *Linaria* growing at some elevation in the woods there. These had a very *Cucullia*-like aspect, and are very close to the figures of *C. casta*, Borkh. These duly produced moths that are not *Calophasia platyptera*, Esp., but are very close to, if not identical with, *C. humifera*, Stgr., and are probably a local race of that species. The interesting point, however, is, that four specimens emerged a few weeks after I got home, some six or eight in May and June, 1905, when three remaining pupæ looked quite undeveloped, and prepared to remain longer as pupæ. Of these three, however, two have just emerged, August 12th and 13th, 1905. The third is alive and well, but evidently contemplates spending some further indefinite time as a pupa, probably till May or June, 1906. What seems curious is, that with delayed emergences like this, there should be in both the first and second year an attempt to produce a second brood or emergence, the progeny of which would certainly at La Granja not succeed in reaching full larval growth before winter set in, the insect being one that hibernates as a pupa, and is probably quite incapable of passing the winter as a larva. I have placed specimens in the Natural History Museum,—T. A. CHAPMAN, Betula, Reigate: August 14th, 1905.

Formica fusca, race *gagates*, in the New Forest.—When collecting in the New Forest this July, a friend called my attention to a peculiarly shaped ants' nest in Matley Bog. In the part in which it was situated the ground was covered with

tussock grass, each tussock forming a little hillock from one to two feet high, the ground between and below the tussocks being wet and mossy. On the top of one of these tussocks was a nest, in the shape of a cone, composed of very small bits of dried grass. It was about 9 inches high, and 4—5 inches wide at the base, the whole supported by the blades of tussock grass on the sides, while some of the blades sprang out from the top, forming a sort of pillar in the middle of the nest.

The ants looked like ordinary *Formica fusca*, but were slightly smaller and much more shining.

Mr. Saunders, to whom I submitted them, considers them to belong to the race *gagates* of *F. fusca*. I think it is probable that the peculiar shape of the nest may have been due to the nature of the surroundings, as the ants could not build except on the tops of the hillocks, and in wet weather these would form so many islands in a miniature lake.—G. ARNOLD, Royal College of Science, South Kensington: August, 1905.

[This form of *Formica fusca* is an interesting one, as it is certainly rare in Britain; it is identical with the form which I considered to belong to the race *gagates* in my "*Hymenoptera Aculeata*," and which the Rev. W. Farren White described as a new species under the name *glabra* in "Ants and their Ways." I sent two of Mr. Arnold's specimens to Prof. Forel for his opinion, and he returns them as *F. fusca* race *gagates* "*une peu fuscoide*."—E. SAUNDERS.]

Hymenoptera and Hemiptera in the Mendips.—From June 22nd to July 13th I collected at Glastonbury and Winscombe. The weather was brilliant and everything seemed to be in a mood which one would have thought most attractive to the Aculeate *Hymenoptera*; but although I was constantly searching the most favourable localities I found practically nothing worth recording. A single *Agénia variegata* ♂, *Crabro capitosus* 1 ♀, 2 *Passalæcus monilicornis*, a few *Odynerus melanocephalus*, and 1 *Stelis aterrima* were the only species not actually common. Not only were the number of species few, but even individuals of common ones were scarce. On one occasion, about noon of the 5th July, I searched a bank facing nearly due south, unusually gay with flowering plants such as ought to attract any respectable bee, amongst them being the following: *Ranunculus*, *Helianthemum*, *Hypericum*, *Medicago lupulina*, *Trifolium pratense*, *Lotus*, *Potentilla*, *Agrimonia*, *Heracleum*, *Daucus*, *Galium verum*, *Chrysanthemum leucanthemum*, *Achillea*, *Senecio*, *Centaurea*, *Hypochaeris*, *Crepis*, *Lapsana*, and *Prunella*, all in abundance; notwithstanding this combination of flowers, a few *Bombus agrorum* ♀, *Apis*, and one *Halictus leucozonius* ♀, were the only visible *Aculeates*.

No doubt the nature of the soil (limestone) is unfavourable to *Hymenoptera*, but I do not remember a similar experience anywhere.

Hemiptera were represented by one or two better species, *Macrocoleus hortulanus* and *Asciodema fieberi* being the best, the former common on *Helianthemum* flowers and the latter rather rare on *Ulmus montanus*. *Heterocordylus unicolor* swarmed on *Genista tinctoria* in several localities.—EDWARD SAUNDERS, St. Ann's, Woking: August 1st, 1905.

Psocidæ at Woking.—In September, 1903, the late Mr. McJachlan asked me to collect Psocids for him when I was at Margate, and gave a list of the few species I captured in the October number of this Magazine for that year. This gave me an interest in these minute creatures, and I have continued to collect them since. In the neighbourhood of Woking I have found several interesting species, so I give below a list of those that have occurred so far:—

Psocus morio, Ltr., not uncommon on poplar trunks, very shy, and runs quickly and hides in the crevices, refusing to jump, and is most difficult to catch. July—August.

Psocus quadrimaculatus, Ltr., very common on palings beneath trees, and also on spruce firs. July—October.

Psocus bipunctatus, L., four females on poplar trunks, 12.viii.04. I am indebted to Mr. Morton and Mr. King for assistance in identifying this species, which puzzled me.

Psocus bifasciatus, Ltr., on spruce and other firs. July—August.

Psocus fasciatus, F., on poplar trunks. June. This species jumps backwards if the ends of its wings are touched.

Psocus variegatus, F., in the same localities as the preceding, but occurs later in the season. July—October. It is now fairly common in my garden, August 1st, whereas I have not seen a *fasciatus* since June.

Stenopsocus immaculatus, Steph., on various trees and shrubs, common. June—September.

Stenopsocus cruciatus, L., common on various trees and shrubs. June—September.

Cæcilius flavidus, Steph., common by beating, occurs on various trees throughout the season.

Cæcilius (*obsoletus* group), two or three species? on firs, &c., but so far I have not mastered the characters of this obscure section, and want more fresh examples to help me in so doing.

Cæcilius pedicularius, L., not uncommon on various trees.

Cæcilius dalii, McL, Holly near Chobham, 11.vii.04.

Peripsocus alboguttatus, Dhlb., on mint in my garden, 18.viii.04.

Peripsocus phæopterus, Steph., common on all sorts of trees and shrubs throughout the season.

Ectopsocus briggsi, McL., common in many localities by beating, and among dead leaves, &c.

Elipsocus unipunctatus, Müll., common on various trees. July—October.

Elipsocus westwoodii, McL., not uncommon on firs, &c.

Elipsocus hyalinus, Steph., not uncommon on firs, &c.

Elipsocus flaviceps, Steph., not uncommon on firs, &c.

Elipsocus cyanops, Rost., not uncommon on larches. July—August.

Clothilla picea, Motsch., I have seen this species once or twice in my house.

Atropos divinatoria, Müll., common in old insect boxes, &c.

—EDWARD SAUNDERS, St. Ann's, Woking: August 1st, 1905.

Note on Ledra aurita.—As this Homopteron is not often recorded, a notice of its capture on bracken at Lydford, on August 12th, by Mrs. Glyde, of Statsford, may be interesting to the readers of this Magazine. Curtis figures it on plate 676 of his "British Entomology," and remarks: "Whether these insects live in their early stages in the frothy secretions that envelop those of kindred genera I am ignorant, being unacquainted with their œconomy."

I have taken this insect in an immature condition several times; in the larva stage hibernating in moss at the end of November, at the foot of an old oak, and in May, in the pupa stage, from the branches of the oak by beating.—G. C. BIGNELL, Saltash: August 15th, 1905.

On Cimex connata, Schr.—On August 28th, 1904, I was so fortunate as to beat from fully grown alder trees in a bog in the centre of Cutler's Wood at Freston, in Suffolk, a very large Tenthredinid larva, such as I had never before met with.

The LARVA was of a beautiful bright green, about two inches in length, with a glabrous head, distinctly scabrous body with warty tubercles above the six true legs, which were extended in so lateral a manner as to allow the coxæ to nearly touch the surface upon which it walked. The grip is so tenacious that it is quite impossible to dislodge it (consequently it rarely falls to the beating stick), and copious clouds of tobacco smoke failed to affect it in the remotest degree. When first touched brilliant green drops of liquid were exuded, like emeralds, from the anterior spiracles; and these, upon further provocation, were squirted in all directions to a distance of six or eight inches (remining one of *Formica rufa*). It fed upon alder leaves, supporting itself by twining its anal extremity around the edge of the leaf, till September 5th, when I found it had spun a cocoon within a leaf which was lightly attached to the bottom of its cage.

The COOON is quite unmixed with foreign matter (unlike that of *C. femorata* with which earth particles are mingled), and at first is bright golden in colour, but in a few hours it becomes of a very distinct reddish type; it is semitranslucent, very tough (though far less so than that of the hedge *Trichiosoma*) and cylindrical with the extremities subtruncate, somewhat compressed laterally—the roundness depending probably upon the contour of the enveloping leaf—with a somewhat smooth and very dull surface, pressed so closely to the envelope as to show the impressions of the mid- and lateral-ribs of the leaf, to which it is attached only by a few frail strands at either extremity and easily disengaged. Its length is 24 mm.

Within the cocoon is quite smooth and glittering, with the larval skin, which is not entirely thrown off by the pupa, packed, together with the pupal envelope, in the anal extremity. Between the cocoon and its encircling leaf is a single pellet of frass. Doubtless the cocoon lies within the leaf, among other withered leaves the whole winter.

From this cocoon a ♀ *Cimex connata*, Schr., issued early in the morning of July 11th, 1905. In emerging the imago entirely removes the operculum by severing the tissue with its powerful jaws.

This species has not before been noted in Suffolk, though there is an example

of *C. lutea*, L., in the late Mr. Alfred Beaumont's collection which was taken near Bury St. Edmunds some fifty years ago by the Rev. A. H. Wratishaw; Paget found the larvæ of *C. sylvarum*, Fab., commonly on birch in Lound Wood before 1831: and in 1900 Mr E. J. G. Sparke bred *C. femorata* from a cocoon which he dug at the base of a tree near Bury St. Edmunds.—CLAUDE MORLEY, The Hill House, Monks Soham, Suffolk: August, 1905.

Obituary.

Thomas William Daltry, M.A., F.L.S.—We much regret to have to record the death of the Rev. T. W. Daltry, which event occurred so long ago as June 4th, 1904. Born at Hull on June 7th, 1832, he was educated at Sedbergh Grammar School, and at Trinity College, Cambridge. In 1855 he was appointed to his first curacy at Petworth, subsequently becoming curate to his father at Madeley, Staffordshire, in 1861. This curacy he held for eighteen years, when, on the death of his father, the Rev. J. W. Daltry, who had been vicar of the parish for forty-six years, he was, on the practically unanimous requisition of the parishioners, appointed vicar, and held the living for twenty-five years, making a total of forty-three years as curate and vicar, and seventy-one years for the father and son together. For many years he was well known as an ardent Lepidopterist, and had an intimate knowledge of our native species. He almost always spent his summer holidays collecting in one or other of our well-known entomological localities, and it was the privilege of the writer to join him on many of these outings, notably in the New Forest, Sherwood Forest, Wicken Fen, Abbot's Wood, Barnwell Wold, &c., where his geniality and enthusiasm were most exhilarating. But it was as Secretary of the North Staffordshire Naturalists' Field Club that Daltry was best and most widely known. The Club was founded in 1865, and on March 23rd, 1866, Daltry was appointed its Secretary, an office which he held continuously up to the time of his death, a period of thirty-eight years, probably the longest time in which an honorary secretaryship of any scientific society was ever held by one person. His interest in the Club was unbounded, and it is safe to say that its great success was attributable to his devotion and business-like management. He was President of the Club for three years (in 1879, 1899, and 1900), but was not allowed to relinquish the secretaryship even during the years of his presidency. He was also Chairman of the Entomological section of the Club from its foundation to his death. The appreciation of his work was shown in the fact that in 1893 he had the gratification of being the first to receive the tribute of honour which the Club had to bestow upon its Members in the Garner Memorial Silver Medal. His most important published Entomological work was probably the "List of the Lepidoptera of North Staffordshire," but many notes on *Lepidoptera* from his pen appeared in the Transactions of the North Staffordshire Club, as well as in the Entomological journals. He was elected a Fellow of the Linnean Society in 1875, and of the Entomological Society of London in 1887.—G. T. P.

ANTIPODEAN FIELD NOTES.

III.—A SKETCH OF THE ENTOMOLOGY OF SYDNEY, N.S.W.

BY JAMES J. WALKER, M.A., R.N., F.L.S.

As Sydney is the head-quarters of the Australian Squadron, I had, during the long period—nearly four years in all—in which I was attached to H.M.S. “Ringarooma,” frequent opportunities of collecting and studying the insect fauna of the district surrounding this great city. In the course of the ship’s commission, we were at Sydney at one time or other during every month in the year, and the greater part of the early summers of three years, the best season by far for collecting, was spent by me in Port Jackson. This enabled me—with the assistance of several kind friends interested in Entomology—to amass a very considerable, and I think a fairly representative series of the insects of the Sydney district. As usual with me the *Coleoptera* received the greatest share of attention, but several of the other Orders were by no means neglected, and in the following notes I propose to give some of my collecting experiences in this productive and most interesting locality.

Port Jackson fully deserves its reputation as one of the most beautiful and picturesque harbours in the world, as well as probably the most secure and commodious of them all. Its entrance, less than a mile in width, between wall-like cliffs of horizontally stratified sandstone 300 feet high, is especially striking, as also are its bold and well-wooded shores and snug little inlets, mainly on the north side. Here in many places the “bush” remains nearly in its original condition, though of late sadly cut into by building operations in a rapidly growing suburb. A large extent of wild land, however, is fortunately reserved for military purposes, and is thus not likely to be interfered with for a long time. The land on the south side of the harbour below Sydney is on the whole lower than that opposite, and includes a considerable extent of shifting and almost bare sand-hills, extending for nearly two miles eastward to the fine ocean beach at Bondi.

The city of Sydney is built on undulating ground about six miles from the entrance of the harbour, but its suburbs extend for a great distance southward and westward, in the latter direction extending almost to Parramatta, about twelve miles from the site of the original settlement at Sydney Cove—now known as “Circular Quay,” and one of the busiest landing-places in the world. Still, even within the city boundaries there are many fine open spaces and parks; and the

Botanical Gardens, situated on the south side of the harbour on a gentle slope facing "Farm Cove" are, if not the most extensive, certainly the most flourishing and beautiful that I have ever seen. A certain amount of collecting can be done here, and in the adjoining "Domain," a fine park over 100 acres in extent, where many of the larger *Eucalyptus* and other trees have been allowed to remain; and a trip of a very few minutes by railway, electric tram, or ferry steamer, will land the collector in highly satisfactory ground for an afternoon's work.

The Australian Museum is a noble and commodious building, and contains a magnificent representative series of the fauna of the great island-continent of Australia, including an excellent collection of its insects of all Orders. This latter is, however, far surpassed by the splendid collections originally formed by the late Sir W. Macleay, and deposited by him in the Museum built by himself, and attached to the University of Sydney, under the care of the veteran Australian Naturalist, Mr. George Masters. To the unfailing kindness and courtesy of this gentleman, whose knowledge of the Australian *Coleoptera* is probably unequalled, I am indebted for invaluable help in identifying my numerous captures in this Order.

Of the localities within easy reach of Sydney, the famous "Botany Bay" is within five miles of the city, and its shores offer to the collector a large extent of rough bush and swamp land, as well as some beautiful beaches of clean white sand. Along the Parramatta River there is still a good deal of untouched "bush" on the north shore, which towards the towns of Ryde and Parramatta gives place to extensive orchards of orange and other fruit trees. Going farther afield, the National Park of New South Wales is only 18 miles to the southward of Sydney, and is reached by rail in less than an hour. This Park is a Government reserve of 36,000 acres in extent, and consists for the most part of dry sandstone uplands about 600 feet above sea-level, covered with light "bush" and flowering shrubs, and intersected with deep gullies or watercourses in which the growth of timber is very fine and varied. The whole of this area has been opened up by excellent roads, and forms a greatly needed sanctuary for the too rapidly vanishing fauna and flora of New South Wales, which are here strictly preserved. The Park may be regarded as the commencement of the famous "Illawarra District," which farther south consists chiefly of a narrow strip of lowland, shut in between the sea and a range of very steep densely wooded hills, in parts meriting the name of inland cliffs, 1500 to 1800 feet in elevation. The bulk of the trees

in the more open ground are the usual *Eucalypti* or "gum trees," which often attain to magnificent dimensions; but in the numerous gullies running up into the range, especially at Lilyvale and Otford, some thirty miles from Sydney, the forest growth is much more varied, and of perfectly tropical luxuriance. Gigantic fig trees rivalling those of the New Hebrides in dimensions, and often loaded with huge masses of the "stag-horn" fern, *Platynerium alaicorne*, are here mixed with other fine broad-leaved trees, in which the beautiful and fragrant "Sassafras," *Atherosperma moschatum*, holds a conspicuous place; tree ferns of large size are abundant, as well as two exceedingly fine and handsome species of palms. These are the so-called "cabbage palm," *Livingstonia australis*, which here forms groves of several acres in extent, and was formerly common about Sydney, though very few remain there now; and the still finer and more elegant "Bangalow" (*Archontophoenix cunninghami*, perhaps better known by its older and more easily pronounced name of *Seaforthia elegans*), which attains a height of 70 or 80 feet. These palms add greatly to the tropical appearance of the forest, which is so matted together with a profusion of tangled vines and creepers reaching to the tops of the tallest trees, as well as with our common bramble in great abundance, as to be almost impenetrable. Access to the gullies is only to be obtained by the narrow and often exceedingly muddy paths made by the timber-getters, along which teams of bullocks haul huge trunks of trees to the saw-mills, amid a great deal of highly picturesque language from their drivers. The operations of the timber-getters, as well as those of coal mining and dairy farming, have greatly marred the appearance of this beautiful district, but it still remains the most interesting and productive collecting ground within easy reach of Sydney, and a long day may be spent there with pleasure and profit at any time of the year. The chief drawback is the presence of land-leeches, larger than those encountered by me in Tasmania, which abound in the damp gullies, and are of the most bloodthirsty disposition.

A short distance to the north of Sydney, on the railway to Newcastle, is another extensive reserve of somewhat similar character to the National Park, called "Kurringai Chase;" and beyond the Hawkesbury River, renowned for the beauty of its scenery, is a large extent of splendidly timbered country, in which, at Gosford and Ourimbah especially, I have met with great success in collecting. To the westward the Blue Mountains are within little more than forty miles distance in a straight line, but these can hardly be accounted part of the Sydney district, and my visits to them may deserve a separate notice.

Sydney enjoys on the whole a very fine and pleasant climate, though the heat of the latter part of the summer, when the prevailing wind is from the north-east, is often very oppressive from the dampness of the atmosphere. Rain falls in refreshing showers throughout the year; the westerly winds in winter are cold and dry, but in summer, blowing from the parched and heated plains of the desert interior, they bring an arid atmosphere laden with excessively fine dust, and frequently raise the thermometer well above 100° in the shade. These so-called "Brick-fielders" blow for two or three days at a time, the temperature continuously rising, but the heat is not as trying as might be imagined, owing to the dryness of the air. When they subside they are usually succeeded by what is known as a "Southerly Buster;" the wind suddenly springing up from the south with great violence, raising dense clouds of dust, and often bringing with it a brief thunderstorm and heavy rain; and it is always accompanied by a remarkable drop in the temperature, often to the extent of 35° , or even as much as 40° , in less than an hour. These cold southerly gales are very welcome, as they are in most cases followed by several days of fine pleasant weather with slowly increasing warmth; but they are very destructive to insect life. The collector may, however, take advantage of them by searching at high-water mark along the sandy beaches, when numbers of common *Coleoptera* in good condition, and some rare ones now and then among them, may be found washed up by the waves, after having succumbed to the sudden chill and fallen into the water.

The larger forms of butterflies are apparently not very abundant near Sydney, though the *Lycænidæ* and *Hesperiidæ* (which have received much attention from my friend Mr. G. A. Waterhouse, a rising young Sydney entomologist) are much better represented, and are numerous in individuals and species. In the following remarks on the Sydney butterflies I confine myself mainly to the species I have personally observed. Of the genus *Papilio* the one most frequently observed is the swift-flying *P. sarpedon*, L., which is commonly seen in gardens in the suburbs, and even in the city, from October to March. Its larva feeds on the young foliage of the camphor-laurel, which is extensively planted as a shade-tree, and thrives remarkably well in New South Wales. *P. lycaon*, Westw., and *P. sthenelus*, MacL., are much less common, the latter, indeed, being quite a rarity at Sydney. The orange orchards are frequented by the fine *P. erechtheus*, Don., and the plainly coloured but elegant *P. anactus*, Westw.; the former is much more common in some years than in

others, and I saw it but seldom, but the latter was usually plentiful enough, and its beautiful orange-spotted larva was to be easily found on the young leaves of the orange and lemon trees. *P. macleayanus*, Westw., an insect of most elegant appearance on the wing as well as in the cabinet, though sometimes to be seen in suburban gardens, is more especially an Illawarra butterfly, and may be observed there more or less commonly from October, when the first summer brood emerges, to as late as the middle of June. I found the curious slug-like larva in May, 1903, at Otford, not rarely on the young foliage of the "Sassafras" tree. So closely does its peculiar pale bright green colour assimilate to that of its food-plant, that it was more easily found by its strong and very disagreeable scent when disturbed than by sight. This scent is totally unlike the pleasant nutmeg-like fragrance of the Sassafras, but resembles that of butyric acid or the smell of the little malodorous ants of the genus *Cremastogaster*. Specimens of *P. macleayanus* bred in confinement are much inferior in brightness of colour to those taken at large.

Danaïs petilia, Stoll, *Euplœa corinna*, Mael., and *Hyppolimnas bolina*, L., though occurring occasionally near Sydney, seem to be always rare there, and I only once saw a ♂ of *H. misippus*, F.—now a common insect in North Australia and Queensland—on Garden Island in the harbour. *Anosia plexippus*, L. (*Danaïs archippus*, F.) is completely established here, its first appearance at Sydney, I believe, being noted about the year 1870. It may now be seen on the wing, more or less commonly, on almost every fine day in the year. As its natural food-plant, *Asclepias curassavica*, has apparently not followed the butterfly to New South Wales, it finds an efficient substitute in another imported weed of the same natural order. This plant, the so-called "cotton-weed," *Gomphocarpus fruticosus*, originally a native of Africa and Syria, is not unlike the *Asclepias* in its growth and general properties, but bears white flowers, succeeded by large inflated green capsules full of cottony down surrounding the minute seeds. It grows commonly in waste places and by roadsides, and the conspicuous larva of *Anosia plexippus* may often be found on it in numbers. For the first time in my long experience of this most interesting butterfly, I found the larva to be here much infested with the larva of a parasitic fly of the family *Tachinidæ*, and often to such an extent, especially in the autumn, that I failed to rear more than one in a dozen to the perfect state. The butterfly is, as usual in its new homes, of the ordinary North American type, and shows no sign of deterioration in the Australian climate, the specimens being often very fine and brightly coloured.

In Memoriam.

J. W. DOUGLAS.

JOHN WILLIAM DOUGLAS, the son of David Douglas, of Tranent, near Edinburgh, was born at Putney on November 15th, 1814. He was educated at a private school, remaining there until he was fifteen, when he sustained a very serious injury, the result of a thoughtless practical joke of one of his schoolfellows. He was returning home on November 5th with a pocket full of crackers, which his schoolfellow set alight; they exploded and burnt his thigh so severely that he had to keep his bed for two years. During this time he turned his attention to Botany, drawing the specimens he collected with great facility, and becoming so keen on his subject, that when convalescent he applied for and obtained employment at Kew in order that he might have the benefit of the best botanical teachers. He was at Kew only for a few years, as his father, with the help of Lady de Grey's influence, obtained for him a situation in the Customs House, where he rose to a high position, retiring at the age of seventy, after more than fifty years' service. Mr. Gladstone before introducing his bill dealing with duties on light wines sent him on a continental tour to report on the various grape cultures, and on his return personally thanked him, and gave him a special Treasury grant of £100.

The heavy cicatrix formed by his severe burn necessitated numerous operations throughout his life, and the enforced leisure enabled him to gain a proficiency in German and French, which proved of extreme value to him, both in his official and Entomological capacities.

He married in 1843, residing at first at Camberwell, but afterwards for many years he lived at Lee and Lewisham.

He began collecting insects when at Kew, and published his first paper in the Entomological Magazine for 1837, entitled, "Random Thoughts on Entomology." For many years his attention was chiefly directed towards the *Lepidoptera*, although he published papers on *Coleoptera* and other Orders. Most of his early writings on *Lepidoptera*, &c., are to be found in the pages of the Entomologist's Weekly Intelligencer, and many of the younger generation of Ento-

mologists must look back with gratitude to his kindness and assistance. "The World of Insects, a Guide to its Wonders," was published in 1856, and he rendered very important assistance in the production of Stainton's "Natural History of the Tineina," in which his name appears as a coadjutor. Another, and perhaps the work by which his name will be best remembered, was published by the Ray Society in 1865, "The British Hemiptera, Vol I, *Hemiptera-Heteroptera*." In this he was a joint author with the late John Scott. It opened the eyes of British Entomologists to the large field of little known forms which existed in this interesting Order, and Douglas and Scott's "British Hemiptera" will always be regarded as a classical work in this country. At the time it was written the *Hemiptera* of Britain were practically unworked, and all Entomologists owe a great debt of gratitude to the Authors of the "British Hemiptera" for the excellent foundation which they laid, and also to Dr. Fieber, of Vienna, for the assistance he rendered in determining many of the unknown species. Additions and corrections to this book were from time to time published in the Entomologist's Monthly Magazine, of which he became an Editor in 1874, and to which for many years he was a constant contributor. In the early days of the Entomological Society he was a very active member. He joined the Society in 1845, became a Member of the Council in 1846, Secretary from 1849 to 1856, and President in 1861. He retired from the Society in 1862, but rejoined it in 1876, continuing as a Fellow to his death. The writer of this will always have an affectionate memory of the kindness of the deceased to himself; he often had occasion to consult him on questions connected with the determination of specimens, and always met with the greatest kindness. On one occasion he borrowed the type specimen of a Capsid, the identity of which he had called in question, and whilst in his possession, one of his children finding a nice looking little box, put some pens into it and shook them up, with the natural result that the specimen was broken to atoms. Any one can imagine the writer's feelings when he had to go and confess what had happened; but the situation was accepted in the kindest way, and without a touch of reproach. For the particulars of the early life of the deceased we are indebted to his son, Mr. Charles D. Douglas.

It is many years since J. W. Douglas took an active part in Entomology, and many of the younger Entomologists of to-day may hardly realize how much he did for their Science; but those who knew him feel that another link with the past, and an important one, has been broken.—E. S.

TETROPIUM SP.? AT LEIGHTON BUZZARD.

BY THE REV. GEORGE A. CRAWSHAY, M.A., F.E.S.

A black form of *Tetropium* has occurred here this summer in some numbers, and I take the present opportunity of briefly recording the first appearance in this district, so far as I am aware, of any member of the genus.

It will be well to leave the question of its identity open for the present.

On comparing my beetle with the two long series of *Tetropium* in the British Museum I remarked that it was different in general appearance from these species. At the same time, in consideration of the variation in form, coloration, punctuation, and pubescence, to which the different members of the genus seem liable, I took the nearest description I could find to my insect, a very brief one by Ganglbauer (Best. Tab. der Europ. Col.), and sent the beetle out to Coleopterists as a *Tetropium*, nearest to *T. castaneum*, L., var. *fulcratum*, F. At the same time not feeling satisfied with this, viewed in the light of my long series of nearly 200 individuals presenting no appreciable variation in their external structure and coloration, and, thinking that my beetle might be a different species from any I had seen, I referred it to M. Bedel, who informed me that Weise had lately described a new species of *Tetropium*, and that it agreed with the specimen I had sent him. I have accordingly communicated with Herr Weise. Mr. Atmore's two recorded specimens (Ent. Mo. Mag., April, 1904), taken prior to mine, and a hitherto unrecorded specimen, taken at Elsfeld, Oxfordshire, by Mr. J. J. Walker, shortly after mine (June 26th, 1905) appear to me, judging from their external structure and coloration, to be identical with the Leighton Buzzard form.

Subsequently hearing that Dr. Sharp is engaged in investigating the genus, I have placed all my material at his disposal, confident that I leave the matter in able hands. I hope, in a forthcoming issue of the Magazine, to deal, at some length, with the capture and life history of the imago and larva, by which time it seems probable that Dr. Sharp will have determined what it is.

I am indebted to Mr. W. Holland for informing me that my first specimen belonged to the genus *Tetropium*.

Leighton Buzzard :

September 12th, 1905.

[In reference to Mr. Crawshay's note I should like to say that great difficulty exists as to the species of *Tetropium* both in Britain and on the continent. I am endeavouring to elucidate this, and should like to be able to examine the specimens of the genus that may exist in British collections. I have before me specimens of *Tetropium* taken near Manchester in 1865, and I think I can say with a fair confidence that we have two, if not three, species in England. Weise has just described a *T. gabrieli* from Switzerland, Germany, &c. Mr. Crawshay's insect is either *T. gabrieli*, Weise, or a closely allied form. If the second alternative prove to be correct I propose to call the Leighton form *T. crawshayi*.—D. SHARP.]

[*T. gabrieli*, Weise (Deutsche ent. Zeitschr., 1905, p. 136), from the Lower Engadine (Tarasp), Tyrol, and Silesia, is said to differ from *T. fuscum*, F., and *T. luridum*, L. (= *castaneum*, L.), in having the frons somewhat convex and not canaliculate. I have taken various specimens of what I suppose to be *T. fuscum* in the Engadine (at Guarda, near Tarasp) and on the Simplon; some of these have the frons canaliculate, and in others the groove is wanting.—G. C. C.]

BARIS (LIMNOBARIS) T-ALBUM, LINN., AND *B. PILISTRIATA*, STEPH.

BY G. C. CHAMPION, F.Z.S.

J. Sahlberg [Acta Soc. Pro Fauna et Flora Fennica, xix, 3, pp. 22, 23 (1900)] separates *Baris T-album* into two species, *B. T-album*, L., and *B. martulus*, Sahlb. These two forms occur in Britain, and were described by Stephens [Mand., iv, p. 10 (1831)]. They may be separated thus:—

Larger and more elongate, the elytral interstices irregularly uniseriate-punctate, especially towards the suture, the punctures each bearing a rather long, coarse, decumbent, whitish hair *pilistriata*, Steph.

(= *T-album*, Sahlb., nec Linn.).

Smaller, more glabrous above, the prothorax a little more transverse, the elytral interstices regularly uniseriate-punctate, the punctures each bearing a short, fine, decumbent, whitish hair *T-album*, Linn.

(= *atriplicis*, Steph., *martulus*, Sahlb.).

I have seen *B. pilistriata* from various southern localities, Sheppey, Faversham, Arundel, Woking, Wicken, &c., and *B. T-album* from Bearstead, Snodland, Oxford, Scarborough, Aviemore, and Nethy Bridge, the latter apparently being the most widely distributed (Stephens gives near London, Bristol and Suffolk for

B. pilistriata, and Battersea fields, Hertford, Norfolk, Somerset and Crwmllyn Bog for *B. atriplicis*). M. Bedel informs me that they are sometimes found together in France, *B. pilistriata* alone occurring in Algeria. Stephens, it may be noted (Manual, p. 216), subsequently treated the larger insect as a "fine" form of *B. T-album*. His name *pilistriata* appears to have been overlooked by Sahlberg and others, and it is not quoted as a synonym in the last European Catalogue. The Linnæan description applies better to *B. T-album* than it does to *B. pilistriata*, and there is no valid reason for transposing the names, if the two forms are to be treated as distinct.

Horsell: August 26th, 1905.

ZEUGOPHORA FLAVICOLLIS, MARSH., AND ITS VARIETIES.

BY G. C. CHAMPION, F.Z.S.

There are various discrepancies in the published descriptions of this species, mainly due to Marsham's work not having been consulted. Canon Fowler, for instance (Col. British Islands, iv, p. 280), says that it has the posterior femora fuscous, whereas in the insect described by Marsham, and figured by Stephens, the legs are wholly reddish-yellow. Weise, too (Naturg. Ins. Deutschl., vi, p. 58), makes the same mistake, and his variety *australis* (femoribus posticis rufo-flavis), to which all the British specimens I have seen belong, is simply typical *Z. flavicollis*. Marsh. The common form on the continent, at least in mountainous districts, has the posterior femora black or blackish. According to Bedel (Faune Col. Bassin Seine, v, p. 224), the two varieties occur together in France; but this is not always the case, as a large number of specimens recently captured by myself at Lautaret, Hautes Alpes, as well as many others taken several years ago at Mendel, in the Austrian Tyrol, have the hind femora black. The number of pale joints at the base of the antennæ, again, is variable (three in British specimens, as stated by Stephens, four in the continental, according to Weise), as is also the shape of the tooth-like prominence at the sides of the prothorax, it being sharply denticiform in some of the continental examples. Weise describes yet another variety, with the elytra reddish-yellow below the shoulders (he notes a similar form of *Z. subspinosus*), but this I have not seen. Our British insect, for specimens of which most of us are indebted to Mr. Harwood of Colechester, is really very like *Z. scutellaris*, Suffr., but differs from that species in having the head, except in front, and

the scutellum black, and the head itself more coarsely and more irregularly punctate. *Z. scutellaris* is attached to *Populus nigra*, and should occur in England. *Z. flavicollis* I have only seen on *Populus tremula*.

Horsell: August 28th, 1905.

OCCURRENCE OF *ARGYRESTHIA ILLUMINATELLA*, ZELL., IN BRITAIN.

BY E. MEYRICK, B.A., F.R.S.

Two specimens of this insect were recently sent me for determination by Mr. Alfred Sich of Chiswick, who (in company with his brother, Mr. Leonard Sich) took them in the middle of June near Hailsham, in Sussex. It does not seem to have been authentically recorded from Britain before, so far as I know; earlier records were based on the species now known as *atmoriella*. The unicolorous species of *Argyresthia* present difficulties which are probably not yet fully understood; and therefore when visiting Merton Hall, I took the opportunity to compare these specimens with Lord Walsingham's continental material, and to get his opinion on them. Lord Walsingham and Mr. J. H. Durrant both agreed with me that they were referable to the true *illuminatella*, and their identity may therefore be taken as established.

The species is markedly smaller and more yellowish than *atmoriella*, but is especially distinguished from it by the much paler hindwings; *atmoriella* feeds on larch, *illuminatella* on pine (species doubtful, or perhaps more than one). *Ocnerostoma piniariella*, which might be confused with it, is abundantly distinct structurally by the reduced neuration and shorter palpi, and is greyer. Mr. Sich reports that the specimens were beaten from *Pinus* (species not ascertained) in a wood which also included larch and other trees; the insect was common, but was regarded at the time as being *O. piniariella*, from which, on subsequent examination, he found it to be distinct. I hope that the discoverer will now complete his interesting record by finding the larva and correctly identifying the food-plant.

I may add that the description in my "Handbook" is drawn from the true *illuminatella* (not from *atmoriella*, to which Staudinger in his Catalogue refers it), but the localities cited are erroneous.

Thornhanger, Marlborough:

August 15th, 1905.

AN ADDITION TO THE BRITISH LIST OF DIPTERA.

BY W. WESCHÉ, F.R.M.S., &c.

In July, 1902, I found a single specimen of the genus *Ulidia* at Birchington, Kent; this I placed in my cabinet without identification of the species. In August of this year (1905) I obtained a number on some weeds, with three pairs *in cop.*, two of which I gave to the British Museum, where Mr. E. E. Austen has identified them as *Ulidia nigripennis*, Lw., and where they may be seen in the British Collection.

There are only two species in Mr. Verrall's list, and this will make a third. The fact of my finding it twice at an interval of three years shows that it is without doubt an established inhabitant of these islands, and not a wind blown insect from the continent, and it has probably hitherto escaped notice owing to its small size.

139, Castellain Mansions,
Maida Vale, W.:

September 4th, 1905.

ANTIPODEAN FIELD NOTES.

III.—A SKETCH OF THE ENTOMOLOGY OF SYDNEY, N.S.W.

BY JAMES J. WALKER, M.A., R.N., F.L.S.

(Continued from page 220).

The handsome *Charaxes sempronius*, Fab., one of the finest of the Australian butterflies, is said to be at times not rare near Sydney, but I never succeeded in taking it, and indeed saw it only once or twice. *Pyrameis cardui*, var. *kershawi*, McCoy, and *Junonia vellida*, Fab., are both very plentiful in waste open places, especially in early summer, when *P. itea*, Fab., is also fairly common, though less so than in some other Australian localities that I have visited. Its spiny larva may be easily found on the formidable stinging-nettle, *Urtica incisa*. The *Satyridae* are perhaps more in evidence than any other group of butterflies in the Sydney district. Several closely allied

small forms of the genus *Hypocista* flit quietly about in shady spots in the "bush" throughout the summer, and the larger and more boldly marked *H. euphemia*, Westw., frequents open rocky places. *Melanitis leda*, L., being almost or quite on the southern limit of its distribution, is but rarely met with, and the little sober-looking *Ypthima arctöus*, Fab., though tolerably common, is somewhat local in open grassy places. The most conspicuous of the group is the beautiful brown and fulvous *Tisiphone* (*Epinephile*) *abeona*, Don., which may be found more or less plentifully throughout the summer in damp gullies and watercourses where the food-plant of its larva, the "cutting-grass," *Cladium* *sp.* abounds (*cf.* Mathew, Trans. Ent. Soc., 1888, p. 141). It has a quiet floating flight, and is a very striking object as it sits with expanded wings on the bright green *Cladium*. *Heteronympha merope*, Fab., *Xenica achanta*, Don., and *X. klugii*, Guér., are all three abundant in the "bush" surrounding Sydney, the first-mentioned appearing early in October, though the females may be found in quite good condition as late as February, long after the other sex has quite disappeared. In the Illawarra district are found the pretty *Heteronympha banksi*, Leach, and the very remarkable *H. mirifica*, Butler, of which the male (*H. digglesii*, Miskin), so closely resembles, in its brown and fulvous coloration, the same sex of *H. merope* as to be quite indistinguishable from it on the wing; while the female, broadly banded with white on a dark sooty-brown ground-colour, is quite unlike any other Australian butterfly.

Of the numerous "Blues" I will here only allude to the beautiful genus *Ogyris*, three or four species of which, including the finest of all, *O. genoveva*, Hew., have been taken in the district by Mr. Waterhouse, but I have only met with one of them, *O. abrota*, Westw.; the larvæ feed in companies on species of *Loranthus* growing on high *Eucalyptus* trees. The very pretty silvery-blue *Ialmcnus evagoras*, Don., is abundant, especially in the National Park, where the larvæ often strip the twigs of the "black wattle" (*Acacia decurrens*) quite bare, and the pupæ may be gathered from the low bushes almost like currants. Both larvæ and pupæ are always attended, and very efficiently guarded, by multitudes of ants of two or three species (some of which bite and sting pretty severely), for the sake of a sticky and rather sickly-smelling secretion which they exude (*cf.* Mathew, Trans. Ent. Soc., 1889, p. 153). The darker-coloured *I. ictinus*, Hew., is less common than its congener, but is not rare at Ryde on the Parramatta River, and is similarly guarded by ants in its earlier stages, which are also passed on the *Acacia decurrens*.

Among the *Pieridæ* I may mention *Delias nigrina*, Fab., which is sometimes not uncommon, but usually flies round the taller trees, too high to be readily caught; the contrast between the white upper surface and the richly coloured black, yellow, and scarlet under-side, give the butterfly a very striking aspect on the wing. *Belenois java*, Sparrm. (*teutonia*, Fab.) is here by far the most abundant species of its family, and may be found plentifully throughout the summer on some large bushes of the so-called "Native Orange" (*Capparis nobilis*) in the Botanical Gardens. In some years this butterfly multiplies to an inordinate extent in the interior of New South Wales, and, like other species of the group, collects in vast migratory flights. Such a migration occurred on November 25th, 1903, and several succeeding days, when absolute clouds of white butterflies, apparently all of this species, were reported from various inland localities, travelling before a hot north-west wind; and thousands were to be seen crossing Port Jackson, mostly from north to south. At the National Park on the 28th it was excessively abundant, and towards evening clusters of twenty or thirty, consisting of both sexes in about equal numbers, could be seen "camped" under the lee of almost every bush. The butterflies had practically all disappeared by the 30th.

The *Hesperiidæ* include a good many species, some of considerable beauty and interest, and one or two (as *Netrocoryne repanda*, Feld.) of fairly large size.

As may be expected from so favourable a situation, the moths are very numerous in species as well as individuals, but I can here allude to only a very few, such as the conspicuous day-flying species of *Agarista*, one of which, *A. glycine*, Lewin, is very plentiful and sometimes destructive in the larva state to the vines. The larval cases of the *Psychidæ* are of great variety of construction, and are very numerous and conspicuous in the "bush" as well as in the gardens, where the large cases of the "bag-worm," *Metura elongata*, Saund., sometimes four inches in length, are among the first objects of their kind to attract the attention of the new comer. The large and handsome green larva of *Antheræa eucalypti*, Scott, which reminds one forcibly of that of the South European *Saturnia pyri*, is often common on the young gum-trees, and has also adopted as a food-plant the South American *Schinus molle*, extensively planted as a shade tree along the suburban roads. One of the most objectionable insects in the "bush" is the larva of the Limacodid moth, *Doratifera vulnerans*, Lewin, which is often found in very undesirable profusion on young

Eucalyptus foliage in early summer. It is a stout, bright green, slug-like creature varied with yellow, with rose-coloured tubercles, each bearing a circular series of motile stiff hairs or spines. The slightest touch of these hairs causes a sensation like that of the sting of a nettle, only worse, which soon subsides, but remains perceptible for several hours afterwards.

Another caterpillar possessed of very marked urticating powers is the enormous larva of the fine Bombycid moth *Chclepteryx collesi*, Gray, which is found, but rather sparingly, on the foliage of *Eucalyptus* at Botany Bay and elsewhere. This larva attains to nearly the size of that of *Acherontia atropos*, and is of a dull dark green colour with several bright yellow tubercles on each segment, bearing fascicles of stiff reddish hairs, which sting very severely when touched. The cocoon, which is not unlike that of *Odonestis potatoria* on a large scale, both in texture and colour, is often found (but usually empty) under loose bark, and is also an undesirable object to handle, as the stinging hairs of the larva are freely interwoven into its substance.

Among the *Hymenoptera* the ants are very much in evidence, especially the small evil-smelling species of *Crematogaster*, which swarm under loose bark to the exclusion of more desirable insects, and the large and formidable stinging species of the genus *Myrmecia*. These ants, which are much dreaded and disliked by the inhabitants of New South Wales, are known by them under the names of "bulldogs," "inchmen" (in allusion to their length), "jumpers," "soldiers," and "joeys;" the last name being applied especially to the bright red *M. gulosa*, Fab., which is the most fierce and aggressive of them all, and is endowed with the most severe and painful sting. It makes large subterranean nests in dry sandy places, often at the foot of a particularly inviting looking bush or tree, and I have more than once been very disagreeably surprised by finding a string of these savage creatures running up the leg of my trousers, having unwittingly put my foot into one of these nests. This ant, as well as the larger and stouter, but less active black *M. forficata*, Fab., and the smaller *M. pilosula*, Sm. (black with bright yellow mandibles), is constantly found ranging about a foliage, and all three frequently appear in the umbrella while beating, and necessitate a good look-out being kept in order to avoid being stung. A large harmless brown species of *Camponotus*, which lives in strong colonies under logs and loose bark, is known as the "sugar-ant," and is the host of the interesting Brenthid beetle *Cordus hospes*, Germ., which is sometimes found in considerable

numbers in the nest of this species. The numerous *Fossores* include several handsome species of *Mutilla*, which occur under bark, as well as walking about in sandy spots; and the curious genus *Thynnus*, so characteristic of the Australian region, is represented in the vicinity of Sydney by a very large number of species, which vary enormously in size and appearance. Some of the males of the larger forms are handsome and conspicuous insects of somewhat wasp-like appearance, which, when caught, go through the motions of stinging with great vigour and persistency, though they are of course perfectly harmless, which is by no means the case with the apterous females. These insects frequent flowers, especially the attractive blossoms of the *Angophora cordifolia* (of which shrub I shall have much to say later on), and are then almost invariably found paired, the females of some of the species being ludicrously small in comparison with their partners. Allied to these is *Diamma bicolor*, Westw., the female of which is perhaps the worst stinging insect found about Sydney, or indeed in Australia; it is a creature not unlike a stoutly built wingless ant about an inch in length, deep shining chrome-green in colour with coral-red legs; it is occasionally found running actively in hot dry places, and requires great caution and dexterity in capture. The *Angophora* blossoms are frequented in their season by several large and somewhat formidable looking *Hymenoptera* of the genera *Scolia*, *Abispa*, *Priocnemis*, &c.; but these are by no means aggressive, and are not to be feared while collecting. Among the *Tenthredinidæ* are several species of the curious genus *Perga*, including several fine and highly-coloured insects; their larvæ are found feeding in companies on the foliage of the young gum trees, often stripping the boughs quite bare, and when disturbed, raising their heads suddenly all together in a very comical way. A small but very beautiful metallic-green "carpenter bee," *Lestis bombyliiformis*, Sm., passes its early stages in the dry pithy flower-stalks of the quaint "grass trees" (*Xanthorrhæa*), and the perfect insect may be taken flying about them in early summer.

One of the most striking features of the Entomology of Sydney, as soon as the hot weather fairly sets in towards the end of October, is the abundance of the *Cicadas*, or as they are invariably miscalled, "locusts." Every suburban garden or cluster of trees then resounds with their shrill, and (at times) somewhat annoying stridulation, and in some of the wooded gullies the din they make is often positively deafening. Comparatively very few of them survive beyond the end of January; in some years, as in 1903 (it is said every third year),

they occur in much larger numbers than usual. Their screeching noise can then be heard on board ship anywhere in the harbour, and the lower parts of the tree-trunks are crowded with the curious horny-looking empty and dry larva-skins from which the perfect insects have escaped. In hot weather they are very active, and not always easy to secure, flying off the tree-trunks readily when approached. Several of the species are of large size, as the green *Cyclochila australasica*, Amyot, perhaps the commonest of all; the reddish-brown *Thopha saccata*, Amyot, the "Double Drummer" of the Sydney boys, so called from the large development of the "opercula" on the under-side of the body of the ♂; and *Psaltoda mœrens*, Germ., whose black body, powdered with small patches of white hairs, suggests its popular name of "The Floury Miller." The sweet and rather pleasantly-flavoured white secretion, much appreciated by the boys under the name of "manna," is produced by much smaller insects of the order *Homoptera* (*Eurymela* spp.), rather gaily marked with deep madder-brown, red, and white, which live in companies in all stages of development on the young shoots of the *Eucalyptus* shrubs. The *Hemiptera* are very numerous represented in species, and include some very curious and handsome forms, but few, if any, of large size; the most singular of all being *Ptilocnemis lemur*, a small brown and fulvous Coreid bug found not rarely under loose dry bark, with the largely developed hind tibiæ furnished with a dense growth of hair, so as to resemble a bottle-brush. Several active and brightly-coloured Reduviids are met with in the same situation, as well as under stones, and some of them are able to give a severe and painful bite if handled without due caution. A fine *Ranatra* occurs in stagnant pools, and a species of *Halobates* is said to be found not rarely on the surface of the water in some of the quiet upper reaches of the harbour, but I never had an opportunity of looking for it.

By shaking out the dry leafy branches of *Eucalyptus*, lying on the ground in bushy places—a very productive method of collecting, especially as regards *Coleoptera*—a relatively enormous Thysanopod, *Idolothrips spectrum*, Haliday (the life-history of which has been ably worked out by my friend Mr. W. W. Froggatt, the Government Entomologist of New South Wales),* may often be obtained in large numbers. Very few, if any, Termite mounds of any size are to be seen near Sydney, but a small species of *Termes* (*lactis*, Froggatt) infests nearly every not absolutely fresh log or stump in the bush;

* Proc. Linn. Soc. N. S. Wales, 1904, p. 54 *et seq.*

it is also exceedingly destructive to the woodwork of buildings in the suburbs of Sydney, and has at times wrought great damage in the city itself. Mosquitoes and other *Diptera*, while sufficiently numerous and annoying, do not constitute so great a pest as in the more tropical regions of Australia, though the "sand-flies" in the National Park are particularly venomous, as I have more than once found to my cost. The *Neuroptera* and *Orthoptera* abound in species and individuals, but do not call for further remark, except perhaps the rare and beautiful species of *Psychopsis* in the first-named Order; and a noticeable feature of the Entomology of the "bush" is the abundance of large forms of *Blattidæ* (*Panesthia*, *Polyzosteria*, &c.). These are found under dead leafy boughs, stones, and logs, and especially in decayed wood, which they reduce to a loose fibrous state; nearly all of them emit a very disagreeable odour, and a species of the last-mentioned genus (I believe *P. ferruginea*, Walk.) is certainly the most evil-smelling insect that I have ever encountered. It is an apterous species about the size of our familiar kitchen cockroach, of a rich glossy reddish-chestnut colour; and when it is revealed by turning up a log, it disdains to run away, but, like the skunk, elevates its hinder end from which it protrudes two bright orange-coloured vesicles, and emits an intolerably rank and penetrating odour that can be easily perceived at a distance of three or four yards. For my part, I could never summon up enough resolution to handle so repulsive a creature.

Some very pretty species of *Forficulidæ* occur under bark, and a large pallid earwig with largely developed forceps, very nearly allied to our *Labidura riparia*, L., if indeed not a form of that insect, is common in sandy places near the shore. The giant of the tribe, *Anisolabis collosa*, De Borm., is not uncommon under damp logs in the Illawarra district. Adult examples vary much in size, the largest specimens sometimes exceeding two inches in length. When disturbed it turns up its tail in a very threatening manner, and it can give so severe a pinch with its anal forceps as to break the skin of the finger and draw blood. The bushmen seem to regard it with much dread, evidently looking on it as a kind of scorpion. Our familiar *Forficula auricularia*, L., does not appear to have reached the Sydney district, at any rate I have never seen it there, though it is abundant and fully naturalized at Hobart and other places in Tasmania.

(To be continued).

Læmosthenes complanatus, Dej., &c., in the Isle of Sheppey.—During a visit to the Isle of Sheppey in August I was induced to examine a very large heap of decayed and condemned sacks from the Sheppey Glue and Chemical Works, piled up in an adjoining field. Here I was able to find all the *Coleoptera*, &c., hitherto met with in the buildings, under vastly more pleasant conditions of working than in the gloom and reeking atmosphere of the "bone-house"; and several additional insects, evidently associated with the works, were found for the first time. The most interesting of these, *Læmosthenes complanatus*, Dej., was very plentiful, mostly hiding between the loose sacks on the sides of the heap, and running off very actively when disturbed. This Carabid, which is in all probability indebted to commerce for its very wide distribution, has been observed by me at such widely separated localities as Gibraltar, Valparaiso (Chile), and Port Adelaide (South Australia); and in New Zealand it occurs in abundance in the neighbourhood of all the ports that I have visited. The usual *Dermestes vulpinus*, *Necrobia ruficollis*, *rufipes*, and *violacea*, and *Alphitobius diaperinus* were in great numbers under the sacks at the base of the heap, especially those which retained traces of grease, and in this situation I met with the following: *Oligota inflata*, common; *Quedius fulgidus*, common, varying much in size and development, with a few of the var. ? *mesomelinus*; *Philonthus veneus*, *varius*, and other common species; *Dendrophilus punctatus* and *Carcinops 14-striata* in large numbers, and *Hister carbonarius* and *12-striatus*, *Gnathoneus nannetensis*, and *Aerilus minutus*, more sparingly: *Omosita colon* and *discoidea*, *Monotoma spinicollis*, *rufa*, and *subquadri-foveolata*, the last-mentioned species found in plenty by shaking the sacks over paper; *Trogosita mauritanica*, *Dermestes lardarius*, *Atomaria munda*, and *Tribolium ferrugineum*, sparingly, and *Trox scaber*, abundant. The two special earwigs *Apterygida arachidis*, Yers., and *Anisolabis annulipes*, Lucas, were also present, the former as usual in large numbers.

Under elods, pieces of wood, &c., in a clay-pit near at hand, I obtained a fine and varied series of *Anisodactylus pœciloides*, a beetle I had quite lost sight of in the Isle of Sheppey since 1874.

Another interesting "find" to me was the beautiful larva of *Cucullia asteris*, which occurred commonly on *Asler tripolium* in the salt marsh not far from Sheerness—a spot which I have known intimately for more than forty years, but where I have never before seen the moth in any stage.

Neither *Colias edusa* nor *C. hyale* put in an appearance during my visit, though I had expected to see the former species at any rate, as it was observed by my friend, Mr. A. H. Hamn, near Oxford on June 25th, and by myself (a large worn example of the ♀ var. *helice*), on the chalk downs at Streatley, Berks, on July 3rd.—JAMES J. WALKER, Aorangi, Lonsdale Road, Summertown, Oxford: Sept. 13th, 1905.

Malachius vulneratus, Ab., in Sheppey.—Of this species, recently added to the list of British *Coleoptera*, there are three specimens in the Power Collection taken by Dr. Power at Sheerness on June 11th, 1859.—EDWARD A. WATERHOUSE, 6, Avenue Gardens, Acton: August 21st, 1905.

[M. Bedel, to whom I am indebted for specimens of both sexes, has recently found this species in abundance at Itteville (Seine-et-Oise), France, at the end of May, upon small rushes : cf. Bull. Soc. Ent. Fr., 1905, p. 176.—G. C. C.]

Coleoptera in the New Forest, &c.—In the New Forest, from April 23rd to 28th, I met with the following :—*Elatér lythropterus*, in numbers, beech logs ; *E. pomonæ*, in small oak logs on ground (9) ; *E. elongatulus* (1) ; *Mesosa nubila* (6), with *E. pomonæ* ; *Cyrtotriplax bipustulata*, in fungoid growth on fallen logs. In the same locality, on June 12th, 13th, and 14th, a friend, Mr. G. F. Zimmer, obtained, chiefly by beating hawthorn bloom already going over and turning brown, sixteen species of *Longicorneæ*, including *Callidium alai* (1), *C. variabile* (1), *C. violaceum* (2), *Grammoptera præusta*, F. (1), *Clytus mysticus* (15), and var. *hieroglyphica*, Hbst. (1), *Mesosa nubila* (3), *Leptura scutellata* (2), *Polyopsia præusta* (4), also *Ischnomera cærulea* (2) and *I. sanguinicollis* (1).

In September, on the banks of the Wye near Ross. I took a fine series of *Opilo mollis* from a dead willow.*—GUY S. WHITAKER, 116, Trinity Road, S.W. : September, 1905.

Recent Captures of Coleoptera.—*Phytosus nigriventris*, Chev. I took two or three examples of this species on the sandhills at the mouth of Poole Harbour, in April, in company with *P. balticus*, Kr.

Gnorimus nobilis, L. I took three examples of this in June on the flower heads of a large *Umbellifer* at Mathow, in Herefordshire, and saw others on the wing.

Ceuthorrhynchus viduatus, Gyll. One specimen, by sweeping on banks of river at Upton-on-Severn, in July. *Bembidium adustum*, Schaum, was extremely plentiful on the same date.—J. R. LE B. TOMLIN, Chester : August, 1905.

Myelophila cribrella on the Kentish Rag, near Ashford.—I have always associated this insect with the Thames littoral, and records of its occurrence elsewhere seem very few.

The capture of a specimen in July, 1904, on Hothfield Common, some three miles to the west of this town, came as a surprise to me, and set me hunting for the larva this last spring, when it was not only found there, but in several places to the east and south of the town—indeed, in almost any waste place on drift sand where the common spear thistles, *Cnicus lanceolatus*, were left undisturbed (*Onopordon acanthium*, which is said to be its usual food plant does not seem to occur here). The furthest locality to the west yet examined was near Lenham, about eleven miles off, where it occurred freely, so that one cannot help thinking it might be found in similar places further up the county, or even into Surrey. The publication of this note may lead to its turning up in other inland districts where it may be as

* This insect was found in the old holes of *Lyctus canaliculatus* (?), which is interesting in reference to Mr. Champion's note on my capture of *Turrostenus univittatus* (Ent. Mo. Mag., vol. xxxvii, p. 300).

little expected as it was in this neighbourhood.—W. R. JEFFREY, Ashford: *September 11th*, 1905.

[*M. cribrella* is now known to occur in many inland localities. Barrett gives eleven counties for its distribution in Britain, six of which are inland.—G. T. P.]

Lophosia fasciata, Mg., in the New Forest.—On July 25th I again took in my garden at Lyndhurst a specimen of this rare Dipteron, which I have not seen since taking the three examples recorded in vol. xxxvii, page 212, of this Magazine.—F. C. ADAMS, 50, Ashley Gardens, S.W.: *September*, 1905.

Abundance of Locusta viridissima, Sc., at Deal.—During the last fortnight in August this year I noticed a great abundance of the fine grasshopper, *Locusta viridissima* at Deal. On the rank vegetation growing on both sides of the well known broad ditch on the sandhills, nearly opposite the coastguard station, it was especially plentiful, and almost every night probably a hundred specimens might easily have been picked off the thistles and other vegetation. In the day-time they were much more difficult to see, as they usually dropped to the bottom of the thick herbage on the least alarm, but with the aid of a lamp at night could be picked off without any trouble. Near the ditch, too, the local *Xiphidium dorsale* occurred, and on the drier parts of the sandhills *Stenobothrus elegans* was plentiful.

In Folkestone Warren *Stenobothrus lineatus* and *Gomphocerus rufipes* were taken, but were not observed elsewhere. In the Warren, too, *Platycleis grisea* was fairly common, but I saw nothing of *Thamnotrizon cinerea*, which in 1888 I found of frequent occurrence there. The various common species of *Stenobothrus* were as usual abundant all over the district.—GEO. T. PORRITT, Edgerton, Huddersfield: *September 7th*, 1905.

Note on the Heteropterous genus Euloba, Westwood.—The genus *Euloba*, Westwood, type *E. pallida*, Westw. (Thesaurus Entomologicus Oxoniensis, p. 191, t. 36, figg. 4, 4a, b (1874)] = *Phyllotingis*, Walker, type *P. arida*, Walk. [Cat. Hemipt.-Heteropt. vii, p. 3 (1873)], was omitted from Scudder's "Nomenclator," and in the "Index Zoologicus," published by the Zoological Society of London (1902), it was incorrectly ascribed to Uhler, on the authority of Bergroth. Lethierry and Severin, too, omitted the reference to Westwood in their Catalogue (1896), also ascribing it to Uhler, who simply used the name *Euloba pallida* in his contribution to Kingsley's "Standard Natural History." The same mistake was made by myself in the "Biologia Centrali-Americana," Rhynchota, ii, p. 68 (1898), following Lethierry and Severin. As the name *Euloba* must be dropped as a synonym of *Phyllotingis* (the descriptions of Walker and Westwood having been made from the same insect from Ega in the British Museum), and the species itself having been previously named by Haglund, it is perhaps hardly necessary to call attention to the matter. I only note it to show how easily a generic description may be overlooked, even when accompanied by excellent figures, and published in a well known work.—G. C. CHAMPION, Horsell, Woking: *September 14th*, 1905.

Review.

ENTOMOLOGEN-ADRESSBUCH. THE ENTOMOLOGISTS' DIRECTORY. ANNUAIRE DES ENTOMOLOGISTES. W. JUNK, Berlin, 1905.

This useful publication contains the addresses of about nine thousand entomologists, arranged under their different countries, and in most cases the particular branch of entomology in which individuals are interested is mentioned; the book is well and clearly printed, and evidently great pains have been taken to secure its accuracy; there is also a complete index; the size is large 8vo, and the work, with the index, occupies about 300 pages. Germany comes first in point of numbers with 2219 entomologists, the United States next with 1323, and Great Britain next with 1252; and so these three countries contain about as many as the whole of the rest of the world put together.

Since receiving the book we have found it of considerable use, and we strongly recommend it to all who are working at foreign insects, as they can see at a glance the workers at their particular subject in any country. The price is five francs, and it is well worth the money.

Obituary.

W. Johnson.—It is with much regret that I have to announce the death in his 90th year of my venerable and valued friend Mr. W. Johnson, who passed away on August 6th at his residence at Wigan.

About fifty or sixty years ago there existed in Lancashire and Cheshire a well known and enthusiastic band of Entomologists, among whom were W. Johnson, Nicholas and Benjamin Cooke, C. S. Gregson, N. Greening, J. B. Hodgkinson, &c. Mr. Johnson was one of the eleven who met at my house on February 24th, 1877, when the Lancashire and Cheshire Entomological Society was founded. He always took a deep interest in the Society, and was a regular attendant at the meetings; and on his removal to Wigan in 1899 he was appointed an Honorary Member. Mr. Johnson was thorough in everything he undertook. I believe he was for thirty years in the engineering department of the Mersey Docks and Harbour Board, and since his retirement his services have been recognised by a pension. Mr. Johnson leaves behind him a collection of *Lepidoptera*, which is now for sale. Among a number of interesting specimens is one of *Eromene ocella*, which is one of the three recorded by Mr. C. G. Barrett, as captured near Liverpool, and I believe was taken by himself.—SAMUEL J. CAPPER.

Society.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY :
Thursday, July 13th, 1905.—MR. HUGH MAIN, B.Sc., President, in the Chair.

Mr. Joy exhibited larvæ of *Thecla rubi* feeding on the berries of buckthorn. He had also found them feeding on the buds of bramble and dogwood. They made holes to extract the contents. Mr. Stonell, an *Abraxas sylvata* (*ulmata*) taken recently in the Clapham Road. Mr. Sich, the ova of *Coleophora gryphipennella* on a rose leaf. It was an upright egg, and abundantly supplied with gum. Mr. Main, living larvæ of *Papilio machaon* at different ages; and also an old stem of an Umbellifer, containing cells of a species of "carpenter bee." Mr. Step distributed copies of the photograph of the members who attended the Field Meeting at Seal Chart on May 27th.

July 27th, 1905.—The President in the Chair.

Mr. Carr exhibited the larvæ of *Epione advenaria* from Seal. Mr. Stonell a putty coloured larva of *Odontopera bidentata* from Yorkshire; and reported that he had taken a fair number of *Cænobia rufa* at Worcester Park. Mr. Main, a photograph of a woodcock's nest, taken in the New Forest; and also a photograph of a colony of the larvæ of *Eugonia polyehloros* in the New Forest, from which he had already bred more than sixty imagines. Mr. Noad Clark, photographs of (1) the ova *Coleophora gryphipennella* on leaves of rose, (2) a much-magnified photograph of the micropyle of the same, and (3) the ova of *Egeria chrysidiformis*. Mr. Sich said that the larva of *C. gryphipennella* was at first a true miner, boring direct from the base of the ovum into the leaf.

August 10th, 1905. The President in the Chair.

Mr. Main exhibited the larvæ of *Hadena contigua*, from ova laid by a New Forest ♀. The colour variation was extreme. Mr. Sich, living larvæ of (1) *Nisoniades tages*, and (2) *Syrichthus malvæ*, both feeding well on garden strawberry. They fed at night and retired in the day time into "tents" of leaves loosely spun together. The former hibernated as a larva, the latter as a pupa. Mr. West (Greenwich), two very local species of *Hemiptera* taken at Yarmouth in July; *Gnathoconus picipes* at roots of violets, and *Chorosoma schillingi* on Marram grass. Mr. Turner, (1) a species of *Edipoda* which was very common at Gavarnie in the Hautes Pyrénées, and (2) a living specimen of *Locusta viridissima* taken by him at the same place. A discussion took place as to the habits of the latter species, and it was considered to be carnivorous rather than vegetarian in its diet. Mr. R. Adkin read a short note from Mr. Kirkaldy on "The Entomology of the Lowlands of Oahu (Hawaiian Islands)."—HY. J. TURNER, *Hon. Secretary.*

ON THE BRITISH SPECIES OF *HYDROTÆA*, Dsv.

BY PERCY H. GRIMSHAW, F.E.S.

During the past few months I have made a detailed study of the genus *Hydrotæa*, with the double object of ascertaining what species undoubtedly occur in our islands, and of writing full and original descriptions of such species, paying especial attention to the chaetotaxy of the legs, a subject which has hitherto been much neglected, especially as regards the female sex. At the outset I made an appeal in this and other journals for the loan of material, and was favoured with a most generous response, receiving many hundreds of specimens, most of them in beautiful condition. I had thus the advantage of examining an unusually complete representation of the genus, and have accordingly prepared a detailed account of our native species, with drawings of the legs in nearly every case. As the length of such a paper, however, would preclude its publication in a monthly magazine, I have deemed it advisable to publish without further delay a short preliminary account of the genus, limiting myself to the *essential* characters only of each species, and reserving the fuller details for some later publication, which may possibly take book form.

Throughout the work I have been largely dependent upon the very valuable Monograph published by Herr P. Stein in 1903, entitled "Die europäischen Arten der Gattung *Hydrotæa*, Rob.-Desv." (Verhandl. der k. k. zool.-bot. Ges. Wien, 1903, pp. 285-337), and although all the descriptions I have written (with the exception of the females of three species) are original and drawn up from specimens actually examined by me, yet in the construction of the keys and in the identification of doubtful specimens I have derived invaluable hints from Herr Stein's paper. At the same time I have described the females of three species which were previously unknown, while that of one species (*H. cinerea*, Dsv.) has yet to be discovered.

In the description of the leg-bristles I have followed the system introduced by me in the present Magazine (1905, pp. 173-176), and have paid more attention to such bristles than perhaps other writers, believing as I do that fairly easy and reliable characters can be founded upon them, especially in the case of the female sex, where identification in the *Anthomyiidae* is usually a matter of some difficulty.

It now remains for me to express my great indebtedness to the gentlemen who have favoured me with the loan of specimens. Mr. E. E. Austen, of the British Museum, very kindly entrusted me with the examination of the specimens under his charge; the Rev. E. N.

Bloomfield, Messrs. A. E. J. Carter, C. W. Dale, Wm. Evans, J. Gordon, J. Henderson, J. J. F. X. King, and E. E. Lowe, sent me the whole of the examples in their collections; Professor L. C. Miall, of Leeds University, allowed me the use of a fine set of specimens from the late Dr. R. H. Meade's collection; Mr. Claude Morley submitted a considerable number of specimens from the Ipswich district; Dr. R. F. Scharff sent a very interesting collection of Irish specimens, mostly collected and identified by Haliday; Dr. David Sharp contributed all the material in the Cambridge Museum collection; Mr. G. H. Verrall most generously lent me a complete and splendid series from his own unrivalled collection; Mr. James Waterston lent me many useful Scottish examples; Dr. J. Wood, of Tarrington, sent a splendid set of beautifully mounted specimens, chiefly from Herefordshire; and lastly, Col. Yerbury allowed me the use of all the material in his possession. To all these gentlemen I now tender my heartiest thanks—without their most generous aid the following account could certainly not have been written.

The genus *Hydrotæa*, in the male sex, is sharply differentiated from the rest of the *Anthomyiidae* by the presence of peculiar teeth on the ventral side of the front femora, and for the purpose of identification this character alone is quite sufficient. The female sex, on the other hand, is not so easy to distinguish, but the combination of all the following characters will readily remove any doubt:—*Calyptra large, the under scale projecting considerably beyond the upper, wings with the 6th longitudinal vein rather long, but ceasing at a considerable distance from the margin, frons always with a pair of decussating bristles, thorax with four post-sutural dorso-central bristles, and two sternopleural bristles, one of which is at the upper anterior angle and the other at the upper posterior angle, in the majority of species the front tibiæ are without bristles, and lastly, the abdomen is usually unicolorous or without dorsal stripe, never spotted.*

Thus the females of *Hydrotæa* may be distinguished from other *Anthomyiidae* by a variety of characters, most of which are found singly in other genera. Only in *Ophyra*, as Stein points out, are the whole of these found in combination as in *Hydrotæa*. It may be helpful to emphasize these characters in another way, thus: the genera of the *Mydæa* group, *e. g.*, *Hyetodesia*, *Mydæa*, *Spilogaster*, &c., only rarely possess decussating bristles, and on the other hand always possess from 3-5 sterno-pleural bristles: those of the *Anthomyia* group have only three post-sutural dorso-central bristles, while the 6th longitudinal vein always reaches the margin of the wing; *Homa-*

Iomyia and its allies have the 7th or axillary vein curved in a peculiar manner round the end of the 6th, while here again and in the remaining group (*Cænosiæ* and its allies) there are only three post-sutural dorso-central bristles.

The species known to occur in Britain may be identified by means of the following keys —

MALES.

1. Hind femora with a single or double ventral spine 2
Hind femora without ventral spine..... 5
2. Spine of hind femora near base 2. *occulta*, Mg.
Spine of hind femora at or a little beyond middle 3
3. Eyes thickly haired 1. *ciliata*, Fab.
Eyes bare 4
4. Spine of hind femora single 8. *armipes*, Fln.
Spine of hind femora double 9. *albipuncta*, Ztt.
5. Abdomen yellow and translucent on at least the two basal segments...
Abdomen nowhere yellow..... 16. *curvipes*, Fln. 6
6. Wings with a patch of microscopic hairs at end of discal cell...
Wings without such patch 10. *militaris*, Mg. 7
7. Basal joint of middle tarsi with a cushion of short, stiff bristles...
Basal joint of middle tarsi simple 15. *irritans*, Fln. 8
8. Middle tibiæ with 1-2 anterior bristles 9
Middle tibiæ without anterior bristles 11
9. Small species ($3\frac{1}{2}$ —4 mm.) 18. *parva*, Meade.
Larger species (6—8 mm.) 10
10. Eyes almost touching; hind tibiæ with a median postero-ventral tuft of fine hairs 7. *pilipes*, Stein.
Eyes distinctly separated; hind tibiæ without such tuft...
6. *palæstrica*, Mg.
11. Small species (3— $3\frac{1}{2}$ mm.); abdomen shining black, and at least the two apical segments without trace of tomentum 17. *glabricula*, Fln.
Larger species (5—9 mm.); abdomen always more or less covered with tomentum..... 12
12. Eyes thickly haired 3. *cyrtoneurina*, Ztt.
Eyes bare 13
13. Middle tibiæ with regular fringes of fine hairs on anterior and posterior surfaces...
Middle tibiæ without such fringes 11. *tuberculata*, Rond. 14
14. Hind tibiæ with 6—12 antero-ventral bristles 5. *similis*, Meade.
Hind tibiæ with 2—3 antero-ventral bristles 4. *dentipes*, Fab.
Hind tibiæ with only 1 antero-ventral bristle..... 15
15. Teeth on front femora inconspicuous and blunt 12. *velutina*, Dsv.
Teeth on front femora long and very acute 16
16. Thorax entirely black; abdomen dark, with the dorsal stripe very indistinct...
Thorax, when viewed from behind, with its posterior third distinctly cinereous; abdomen light cinereous; with the dorsal stripe sharply defined ...
13. *meteorica*, L.
14. *cinerea*, Dsv

FEMALES.*

1. Abdomen with sides of two or three basal segments yellow... 16. *curvipes*, Fln.
Abdomen nowhere yellow..... 2
2. Head of halteres yellow 3
Head of halteres black or dark brown 5
3. Thorax and abdomen shining blue-black; front tibiæ with a postero-ventral bristle at one-third from apex 1. *ciliata*, Fab.
Thorax and abdomen yellowish-grey or brownish-grey; front tibiæ without postero-ventral bristle 4
4. Arista distinctly pubescent; posterior transverse vein nearly straight, more than its own length from the middle transverse vein ... 15. *irritans*, Fln.
Arista practically bare; posterior transverse vein strongly flexed, not more than its own length from the middle transverse vein 9. *albipuncta*, Ztt.
5. Middle tibiæ with an anterior bristle 6
Middle tibiæ without anterior bristle 11
6. Middle tibiæ with a ventral bristle 10. *militaris*, Mg.
Middle tibiæ without ventral bristle 7
7. Front tibiæ with a median dorsal bristle 8
Front tibiæ without median dorsal bristle 10
8. Thorax yellowish-grey, with a more or less distinct central stripe... 6. *palestrica*, Mg.
Thorax blackish, with slight grey tomentum and four (two broad outer and two narrow inner) rather indistinct stripes 9
9. Hind tibiæ with two, rarely three, antero-ventral bristles; calyptra whitish... 4. *dentipes*, Fab.
Hind tibiæ with four to six antero-ventral bristles; calyptra more or less tinged with yellow..... 5. *similis*, Meade.
10. Size larger (6 mm.); calyptra strongly tinged with yellow ... 7. *pilipes*, Stein.
Size smaller (3—4 mm.); calyptra without trace of yellow... 18. *parva*, Meade.
11. Abdomen shining black or blue-black, with scarcely a trace of tomentum ... 12
Abdomen more or less covered with grey tomentum 13
12. Frons all shining black; size smaller (3 mm.) 17. *glabricula*, Fln.
Frons dull black, with a little grey tomentum; size larger (4—5 mm.)... 11. *tuberculata*, Rond.
13. Ocellar triangle black and conspicuously polished 2. *occulta*, Mg.
Ocellar triangle dull greyish, or at any rate never conspicuously polished ... 14
14. Hind tibiæ with four to five antero-ventral bristles..... 3. *cyrtoneurina*, Ztt.
Hind tibiæ with at most two antero-ventral bristles 15
15. Thorax shining black, with very little tomentum; size larger (5—7 mm.)... 12. *velutina*, Dsv.
Thorax thickly covered with grey tomentum; size smaller (5—5½ mm.) ... 16
16. Arista distinctly pubescent; hind tibiæ with three bristles about the middle... 13. *meteorica*, L.
Arista quite bare; hind tibiæ with only two bristles about the middle... 8. *armipes*, Fln.

* As the female of *H. cinerica*, Dsv., is not known to either Herr Stein or myself, I have not been able to include this species in the present key.

1.—*H. CILIATA*, Fab. *Male*: *Eyes densely hairy*; arista distinctly pubescent on basal half or two-thirds. *Thorax shining black* with a slight steely tinge; *shoulders* when seen from behind conspicuously *silvery-white*. Abdomen shining blue-black with three interrupted transverse bands of whitish tomentum. Front tibiae with a postero-ventral bristle at one-third from apex; *middle femora with a pair of very characteristic curved and upwardly directed apical dorsal bristles*, which are nearly half the length of the tibia and closely united with one another except for a short distance at their base; hind tibiae with a ventral tuft of fine hairs at the middle, which run out, but gradually diminish in length, to the apex. Calyptera conspicuous, whitish; halteres brownish-yellow. Size, 7—8 mm.

Female: Eyes practically bare; frons one-third of width of head, deep black, orbits slightly shining above, highly polished near antennae, ocellar triangle large and highly polished. *Thorax blue-black, shining*; *shoulders*, and an indication of a central stripe in front, *glistening white*. Abdomen blue-black, shining and unicolorous, with a slight dusting on last segment. *Front tibiae with a small but distinct median postero-ventral bristle*; middle femora with a decided bend upwards in apical third; hind tibiae with one dorsal, two antero-dorsal, and three to four antero-ventral bristles in apical half.

The female of this species may be distinguished from that of *Ophyra leucostoma*, Wied., which it much resembles, by its much broader frons, its glistening white shoulders, its much more silvery cheeks, and the tomentum on the last abdominal segment.

Apparently common and widely distributed. I have seen specimens from many localities, ranging from Devonshire and the New Forest north to Arran and Edinburgh, also in Ireland. Mr. Verrall reports it also from Cornwall, Sussex, and Aberdeen. The dates range from June 4th to October 5th.

2.—*H. OCCULTA*, Mg. *Male*: *Eyes thickly haired*; arista slightly pubescent in basal half. *Thorax dull black*, when seen from behind with a very slight greyish tomentum, which leaves three broad but very indistinct black stripes; shoulders cinereous. *Abdomen bluish-cinereous, with a distinct almost continuous dorsal stripe* and the basal half of 1st segment black; a transverse brownish band at bases of 3rd and 4th segments. *Hind femora with a strong ventral spine near base*; hind tibiae with a complete antero-dorsal row of long, fine hairs, which gradually diminish in length as they approach the apex, a similar row on the apical half of anterior surface, and a sharply defined tuft on ventral surface at about one-third from apex. Wings brownish-hyaline, halteres blackish-brown. Size, $4\frac{1}{2}$ — $5\frac{1}{2}$ mm.

Female: Eyes with a few short scattered hairs; frons dull deep black; ocellar triangle black and highly polished. *Thorax black*, slightly shining and with a slight greyish tomentum; *shoulders cinereous*. Abdomen pointed at apex, black and slightly shining, with a slight greyish tomentum, which is thicker on the last segment. *Front tibiae bare*, except for the usual subapical dorsal bristle. *Hind tibiae with two (rarely three) dorsal bristles, viz., a small one near apex, a large one at one-third from apex, and sometimes a small one near middle, one anterior post-median bristle, and two to three antero-ventral ones in apical half.*

A common species. I have seen over thirty specimens, and have records which extend from the extreme south of England to Gairloch, Aberdeen and Golspie in the north. The dates range from April 20th to October 17th. The male is easily recognised, but the female is more difficult to identify. If careful attention be paid, however, to the characters given in the key and those in italics in the preceding paragraph, the latter sex may be identified with tolerable certainty.

3.—H. CYRTONEURINA, Ztt. (*silvicola*, Lw.). *Male*: Eyes thickly haired above, arista shortly pubescent in basal half. *Thorax* deep black, slightly shining, shoulders shining black. *Abdomen* black with a slight olive-greenish tinge, thickly covered with grey tomentum, which is much denser at the sides, giving an almost tessellated appearance, and leaving a somewhat indistinct dorsal stripe. *Hind tibiæ* with two dorsal bristles in apical half, a complete but irregular row of antero-dorsal bristles, a regular series of about six antero-ventral bristles, and an irregular series of mixed bristles and hairs in the middle of the postero-ventral surface. *Wings* strongly tinged with brown; calyptre strongly tinged with orange. Size, 7—8 mm.

Female: Unknown to me. The following particulars are taken from Stein's description: Eyes only shortly and sparingly hairy, so that this sex is difficult to distinguish from the female of *dentipes*, which it much resembles. *Thorax* dusted with grey, when seen from behind with a rather broad but indistinct middle stripe. Sternopleural bristles, one anterior and one posterior, under the latter never a second shorter one (which is always the case in *dentipes*). Abdomen with slight tessellation and a trace of a dorsal line. *Middle tibiæ* without anterior bristle; mostly with three posterior bristles. *Hind tibiæ* with one dorsal, two or more antero-dorsal, and four to five equally long antero-ventral bristles.

A rare species, and possibly confined to the south of England. I have only seen five British examples, all males, viz.: two from Ivybridge (12.6.83) and one from Lynton (19.6.83), Devonshire, in Verrall's Collection, one from Ivybridge in the Brit. Mus. Collection, obtained by Col. Yerbury (4.5.93), and one from Felden, Herts (13.10.97), captured by A. Piffard, and also in the Brit. Mus. Collection. Meade refers (Ent. Mo. Mag., xviii, p. 123) to a specimen taken by C. W. Dale at Glanvilles Wootton.

4.—H. DENTIPES, Fab. *Male*: Eyes bare, separated by a narrow deep black space; arista distinctly thickened and pubescent at base. *Thorax* shining black, with a very slight greyish tomentum, which leaves four rather indistinct longitudinal black stripes, viz., two narrow inner ones and two broad outer ones, shoulders distinctly cinereous. *Abdomen* greyish-olive, covered with grey tomentum, which is patchy and much denser at the sides, giving a slightly tessellated appearance, base of 1st segment black, from which proceeds a slender dorsal black stripe, which is continued quite to the tip of the abdomen. *Front tibiæ* with two dorsal bristles, one near the apex and a smaller one about the middle. *Middle tibiæ* with the anterior surface furnished with a regular and characteristic fringe of tiny hairs,

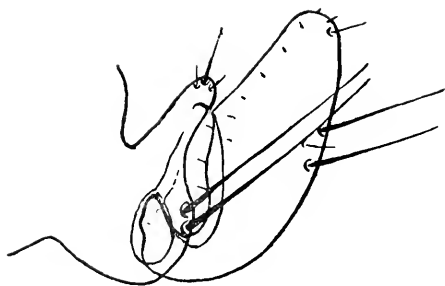


FIG. A.

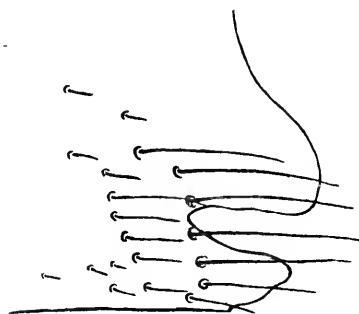


FIG. B.

CERATOPHYLLUS FARRENI, ROTHSCH., *n. sp.*

which stand off quite at right angles to the surface. Hind tibiæ slightly prolonged into a blunt process on the ventral side of the apex, with two dorsal bristles (one short subapical and one much longer at one-third from apex), a regular and complete antero-dorsal fringe of fine long hairs, and only two to three antero-ventral bristles. Calyptra whitish, lower scale with orange margin. Size, 7—8 mm.

Female: Eyes bare, frons deep black, orbits greyish behind, silvery in front, ocellar triangle greyish, with the central portion immediately surrounding the ocelli polished black. Thorax as in male, but the longitudinal stripes more distinct. Abdomen olive-cinereous, with a very indistinct dorsal stripe. Front tibiæ with two dorsal bristles as in male. Middle tibiæ with a single anterior bristle at one-fourth to one-third from apex. Hind tibiæ with two dorsal bristles as in male, one median antero-dorsal bristle and two to three antero-ventral bristles in apical half.

Abundant in all parts of the kingdom.

5.—*H. SIMILIS*, Meade. *Male*: Very like the preceding species, but the eyes are sub-contiguous, and the abdomen very slightly longer and narrower, more uniformly olive-cinereous, sometimes almost of a leaden hue, the patchy appearance seen at the sides in *H. dentipes* being quite or almost absent. (This feature is best seen when the apex of the abdomen is turned towards the light.) Middle femora with about six strong bristles on basal half of ventral surface (absent in *H. dentipes*). Middle tibiæ with a fringe of tiny hairs on anterior surface; these, however, are not erect, but stand at an angle of 45° with the surface. Hind tibiæ without the ventral apical projection; antero-dorsal surface fringed with fine hairs, with two to three strong bristles in apical half (absent in *H. dentipes*), and a series of six to twelve or even more antero-ventral bristles in apical half. Calyptra with the lower scale more strongly tinged with orange. Size, 8—9 mm.

Female: Like that of *H. dentipes*, but the hind tibiæ have four to six antero-ventral bristles, which occupy the apical two-thirds. Calyptra much more yellowish. I have not been able to discover any other good and constant character by which the female of this species may be distinguished from that of the preceding. In most specimens, however, the abdomen appears to be more uniformly olive-grey.

This is undoubtedly a distinct species, widely distributed, but no doubt often passed over as *H. dentipes*. I have examined at least fifty specimens from all parts of the country, but the majority (indeed nearly all) of my records are from Scotland and the more hilly parts of England. It ranges from Lynton, Devonshire (Verrall) to Golspie (Yerbury) and Lairg (Verrall) in Sutherland.

6.—*H. PALESTRICA*, Mg. (*rondanii*, Meade). *Male*: Eyes bare, separated by a rather wide black space; arista thickened and very distinctly pubescent in basal half. Thorax black, with dark slaty-grey tomentum, which in anterior half leaves three about equally broad longitudinal stripes black, shoulders light cinereous. Abdomen yellowish-cinereous, or with a slaty-bluish tinge; a narrow black dorsal stripe usually reaching the apex and much broadened on 1st segment. Middle coxæ armed behind with three very strong spine-like bristles, which are closely applied to one another and directed downwards and slightly backwards. Middle tibiæ

in apical half with two to three posterior bristles, and *two rather long curved antero-dorsal bristles*, the antero-dorsal surface also fringed throughout with fine, very short, regular bristles, apical bristles very strong and conspicuous. *Hind femora with seven long and very conspicuous antero-ventral bristles* in apical half. *Hind tibiæ* with two long and conspicuous dorsal bristles, two to three long and fine antero-dorsal bristles in apical half, a complete fringe of short regular bristles on same surface, and three to four antero-ventral bristles in apical half. *Wings strongly tinged with brownish-yellow; calyptæ strongly tinged with orange*, lower scale with a bright orange margin; halteres brownish-black with somewhat yellowish stalk. Size, $6\frac{1}{2}$ —8 mm.

Female: *Frons* fully one-third of width of head, *black*, in some lights with a yellowish-grey tomentum; *ocellar triangle slightly shining*. *Thorax yellowish-cinereous*, with three about equally broad blackish stripes, the two lateral ones more distinct in front of suture, central one more distinct behind, but becoming obliterated before reaching scutellum. *Abdomen uniformly yellowish-cinereous*, with a slight trace of a narrow dorsal black stripe. *Middle tibiæ* with bristles as in ♂, but the fringe on antero-dorsal surface not so conspicuous. *Wings hyaline*, but *strongly tinged with yellow at base*.

A very distinct but uncommon species. Meade's *ronanii* is undoubtedly the same, and I have had the good fortune to examine two males so labelled from Meade's own collection, thanks to the kindness of Professor Miall. One of these is labelled, in Mr. Verrall's handwriting, "Lagg, 19/6/82," and the other was presumably taken by Meade himself at Bastow, Derbyshire, in July, 1887.

In the same collection is a male labelled "*palæstrica*," sent to Meade by Kowarz from Austria. I cannot accept the distinguishing characters given by Meade (Ent. Mo. Mag., xviii, p. 125, and "Descr. List," p. 26) as of any value whatever. Stein also regards the two as identical. Besides Meade's specimens I have seen males from Barton Mills, Suffolk, and Aberlady (Verrall); Stoke Wood, Pentelow, Cusop, Pixley, and Westhide (Dr. J. H. Wood); and Aberfoyle (Carter). I have not seen an undoubted British female, and my description has been drawn up from a continental specimen in Meade's collection. A specimen of this sex sent by Verrall I am quite sure was only *dentipes*, F. The dates of these records range from May 31st to September 5th.

7.—H. PILIPES, Stein. *Male*: *Eyes bare, cohering or only separated by an exceedingly narrow space*, arista distinctly thickened, but only slightly pubescent at base. *Thorax shining black*, without any trace of tomentum or stripes. *Abdomen black*, with broad interrupted transverse bands of bluish-grey or yellowish-grey at bases of 2nd, 3rd, and 4th segments. *Middle tibiæ with two to three posterior bristles* in apical half, and one (rarely two) antero-dorsal bristle in apical third. *Hind femora* with complete rows of antero-dorsal and antero-ventral bristles, and complete rows of ventral and postero-ventral fine hairs. *Hind tibiæ* with two long

and conspicuous dorsal bristles, antero-dorsal surface fringed throughout with short regularly-disposed bristles, and with three long and conspicuous ones in apical half, antero-ventral surface with a row of six to eight regularly disposed bristles of moderate length in apical two-thirds, *postero-ventral surface with a characteristic tuft of fine hairs in median third*, these hairs gradually decreasing in length towards apex. *Wings with a slight yellowish-brown tinge, calyptra distinctly tinged with orange*, halteres with black knob. Size, 6—7 mm.

Female: *Frons* one-third of width of head, *deep black*, with a very slight brownish-grey tomentum in certain lights, *ocellar triangle polished black*. *Thorax and abdomen uniformly shining black*, without tomentum. *Front femora* with eight to nine postero-ventral bristles, of which those in apical half are about twice the length of the rest. *Middle tibiæ as in ♂?* In the single female I have seen only one middle leg is present, and the tibia has one posterior bristle at one-fourth from apex, and two rather small antero-dorsal bristles in apical third. *Hind femora* with antero-dorsal bristles as in ♂, antero-ventral surface with only about four bristles in apical third, ventral and postero-ventral surfaces only with short pubescence. *Hind tibiæ with dorsal bristles as in ♂, three long antero-dorsal bristles, but no fringe of short ones, and no bristles on the other surfaces*. *Wings hyaline, a little yellowish at base*, calyptra and halteres as in ♂.

This species was first introduced by me as British in the "Annals of Scottish Natural History," 1904, pp. 158-160. In addition to the four males there alluded to, I have seen a single female taken by Mr. Carter at the same place and time (Aberfoyle, July 4th, 1903), and also a male taken by Col. Yerbury at Porthcawl, Glamorganshire, on June 6th, 1903. I suspect that the species has hitherto been overlooked, and it should occur in other localities, most likely in hilly districts. The female was previously unknown.

(To be continued).

LIST OF BRITISH DOLICHOPODIDÆ, WITH TABLES AND NOTES.

BY G. H. VERRALL, F.E.S.

(Concluded from page 196).

34. BATHYCRANIUM Strobl.

B. bicorellum Zett.: I had only unsatisfactory specimens of this species from Wicken Fen, and Plashet Wood near Lewes, until Mr. C. G. Lamb took a male in perfect condition at Padstow, in Cornwall, in July, 1902, and he took it again in the New Forest, in July, 1905. It is a very little known species up to the present time.

35. *CHRYSOTIMUS* Lw.

- 1 (2) Antennæ black 1. *molliculus* Fall.
 2 (1) Antennæ yellow, with the tip brownish 2. *concinus* Zett.
1. *C. molliculus* Fall.: occasionally abundant. I have records from Penzance, Three Bridges, Reigate, Brandon, and Whittlesford in Cambridgeshire.
2. *C. concinns* Zett.: when I began this paper I had little expectation of including this species as one known to me, because as far as I can trace there have been recorded only about five specimens from Scandinavia and one from (I think) Hungary, beyond Walker's record. In July, 1904, however, Mr. C. G. Lamb and Dr. D. Sharp found it in abundance in Aldridge Hill End, in the New Forest.

36. *XANTHOCHLORUS* Lw.

- 1 (2) Thorax orange, with a green patch behind... 1. *tenellus* Wied.
 2 (1) Thorax shimmering metallic grey 2. *ornatus* Hal.
1. *X. tenellus* Wied.: not uncommon in Suffolk and Cambridgeshire, and I expect in many other places when searched for. A. Müller once found this species by hundreds on leaves of shrubs at Shirley, near Croydon, but all of them dead from a fungoid attack.
2. *X. ornatus* Hal.: much commoner than *X. tenellus*, and I have seen specimens from Slapton Leigh to Nethy Bridge. Both species have occurred in my own garden.

37. *ANEPSIOMYIA* Bezzi.

A. flaviventris Meig.: fairly common in the New Forest, and I have also taken it at Buxted in Sussex, Weybridge in Surrey, and at Dolgelley, and Mr. F. Jenkinson has taken it at Crowborough, in Sussex. The male is easily distinguished by its peculiar antennæ, but beyond that the brilliantly polished, almost black, thorax and the pale belly are striking characters.

38. *MICROMORPHUS* Mik.

M. albipes Zett.: the tiniest European Dolichopid, but always recognisable in the net from its unmistakable Dolichopid attitude. Probably not uncommon, but overlooked because of its size; I have found it often common, and have taken it in the New Forest, Wicken Fen, the Norfolk Broads, in various localities in Sussex, at Cromer, and at Aberlady.

ferruginous parts duller than in *A. raptor*; on the other hand, in the darker specimens taken at Torcross the structural characters agree with *A. raptor*, but the thorax is dark slaty-grey, and the legs all blackish, except for a slight ferruginous tinge at the tip of the femora, and on all the tibiae (unless at the tip), and on all (except the tip) of the basal joints of the tarsi; other specimens, however, exhibit more ferruginous colouring, but never to any great extent. If the Torcross specimens represent a distinct species, the plainest character would lie in the much more blackish hue of the wings as compared with the brownish tinge of the two known species.

A. celliber occurs in company with *A. raptor* at Ilfracombe, and Mr. C. G. Lamb has taken it freely at Padstow, in Cornwall; Haliday recorded it from Smerwick Bay, Kerry.

2. *A. raptor* Walk.: common on the sides of rocks and about the base of cliffs where washed by the sea on the coasts of Cornwall and Devon. The dark form mentioned above may represent an autumnal form. Walker (really Haliday) records it from Torquay and Dundrum Bay, in Ireland.
3. *A. ferox* Walk.: in abundance at Totland Bay, in the Isle of Wight, and also occurring at Torcross and Whitsand Bay, near Plymouth, and at Padstow, in Cornwall.

ADDENDA ET CORRIGENDA.

Vol. XV—

page 165, add : *Chrysotus femoratus* Zett.

Thrypticus sp. ?

Porphyrops rivalis Lw.

Xiphandrium lanceolatum Lw.

Systemus Scholtzii Lw.

bipartitus Lw.

tener Lw.

leucurus Lw.

Medeterus obscurus Zett.

„ 166, line 14 from bottom : “ 1 (70) ” instead of “ 1 (68). ”

„ 170, „ 12 „ top : “ C. G. Lamb ” „ “ F. Jenkinson. ”

„ 13 „ „ „ add after 1903 : Dr. J. H. Wood has also taken both sexes in Herefordshire.

„ 195, line 10 from top : “ 23 (80) ” instead of “ 23 (82). ”

Vol. XVI—

page 51, add to *H. atrovirens* : Mr. C. G. Lamb took a male in the New Forest in July, 1905.

page 53, add to *Lamprochromus elegans* : It has been taken in numbers in the New Forest in July, 1905, by Mr. C. G. Lamb.

, 111, „ *P. fascipes* : Mr. C. G. Lamb found this species not uncommon at Nethy Bridge in June, 1905.

„ 169, alter the table of *Systemus* as follows :

1 (4) Cubital and discal veins strongly approximating before the tip.

2 (3) Tip of the wing with a conspicuous black spot...

1. *Scholtzii* Lw.

3 (2) Tip of the wing uncoloured.....2. *adpropinquans* Lw.

4 (1) Cubital and discal veins almost parallel.

5 (8) Antennæ entirely black.

6 (7) Third joint of antennæ conical and broad, arista shorter than the third joint ; genital lamellæ very long, with the basal part black and unusually long, the apical part short, but with two long pointed black shafts ; outer lamellæ long, threadlike, forked, and dirty whitish3. *bipartitus* Lw.

7 (6) Third joint of antennæ very long and pointed, arista black, scarcely half as long as the third joint ; genital lamellæ with the basal part brown and very short, the apical part large and rather thick and all white ; outer lamellæ very short, white with a black tip4. *leucurus* Lw.

8 (5) Antennæ with the basal joint conspicuously pale yellow...

5. *tener* Lw.

line 8 from bottom : “four” instead of “two,” and *dele* after “more” down to “unsatisfactory.”

„ 170, line 14 from top : *delete* “in his own garden.”

„ 19 „ „ , read : “from a tree at Aldenham Park near Bridge-north,” instead of “from an elm tree at Aldenham, Herts.”

„ 4 from bottom : omit paragraph after “*leucurus*” and add “a male was bred from rotten wood *débris* in the New Forest in July, 1905.”

4. *S. leucurus* Lw. : a male was bred by Dr. D. Sharp from rotting wood *débris* in a beech tree on April 4th, and another on May 5th, 1905, in the New Forest, while Mr. C. G. Lamb had previously taken a male in July, 1904, which was emerging from a pupa ; I had seen this latter specimen, but (although I suspected it to be *S. leucurus*) thought it too immature to identify it as new to Britain, but I have now no further doubt. The genital appendages are very conspicuously white, and the tiny black apical dots stand out. The species is I believe only known from bred specimens, as Loew described it from some specimens bred by Von Heyden at Frankfort on the Maine from decayed wood about 1858, and it has since been recorded only by Beling, who also bred it.

5. *S. tener* Lw. : a male was bred from similar *débris* in the New Forest in July, 1905, and also a female of probably this species. The

conspicuously pale basal joint of the antennæ affords a strongly distinctive character. The genital lamellæ have the basal part long, thin, and black, the apical part short, not much swollen and brown, with its outer lamellæ whitish, threadlike, but broad at the base, and not very long. I do not think that this species has been recorded since Loew described it from Halle in 1859.

The adding of the genus *Systenus* and all its known species to Britain in four years, through breeding them, is a remarkable occurrence, and shows how much may be done by distinct methods of collecting.

page 171, add to *S. tarsatus*: It was taken in the New Forest in July, 1905, by Mr. C. G. Lamb.

The British *Dolichopodidæ* now include 41 genera and 204 species, as against Walker's 15 genera and 138 species; of course the number of genera has been mainly increased by the breaking up of the previous large and in many cases heterogeneous genera, but (as six of Walker's species have been omitted) there has been an increase of over 50 per cent. in the species, and I think as many more may still be added without much trouble. Of the 132 species described by Walker I possess all but five, and I have seen specimens of all except *Hygroceleuthus latipennis*, *Hercostomus fulvicaudis*, and *Thinophilus flavipalpis*.

Sussex Lodge, Newmarket.

FURTHER NOTES ON MANX COLEOPTERA.

BY J. R. LE B. TOMLIN, M.A., F.E.S.

The following notes are in continuation of my paper in Ent. Mo. Mag., 1904, pp. 177—9, and are the outcome of about a week's collecting in the Isle of Man at the end of May, 1904. I group the species geographically as before, and to these four districts I now add a fifth—as the result of a visit to the summit of Snaefell,—and a sixth for the high land of Bradda Head.

Though I only collected specimens of twenty-four species on the top of Snaefell, there was quite enough material to confirm the alpine nature of its fauna, as evidenced by such forms as *Arpedium brachypterum*, Gr. (common), *Homalota eremita*, Rye (very abundant), *Otiorrhynchus maurus*, Gyll., *Patrobus assimilis*, Chaud., and *Pterostichus vitreus*, Dj. (both common).

I have added half a dozen species to the Curragh list which were captured by Dr. Bailey. The asterisk, as before, denotes that the insect has not hitherto been recorded for the Isle of Man.

I.—KENTRAUGH.

**Cercyon depressus*, Steph. ; **Homalota puncticeps*, Th. ; **Olibrus weneus*, F. ; **Crypticus quisquilius*, L. ; **Apion confluens*, Kirb., common on *Matricaria*.

II.—THE CURRAGH.

**Acupalpus exiguus*, Dj., var. *luridus*, Dj. ; **Bembidium mannerheimi*, Sahl., also at Port Erin ; **Dromius meridionalis*, Dj. ; **D. melanocephalus*, Dj. ; **D. nigri-ventris*, Th. ; **Cercyon obsoletus*, Gyll. ; **C. flavipes*, F. ; **C. unipunctatus*, L. ; **C. lugubris*, Pk. ; **Hydroporus nigrita*, F. ; **Philydrus coarctatus*, Gredl. ; **Oxy-poda longiuscula*, Gr., also on Snaefell ; **Homalota luteipes*, Er., a single example ; **H. gyllenhali*, Th. ; **H. volans*, Scrib., also in Colby Glen ; **H. graminicola*, Gr. ; **H. trinotata*, Kr. ; **H. muscorum*, Bris. ; **H. fungi*, Gr. ; **Gnypeta labilis*, Er. ; **Autalia rivularis*, Gr. ; **Myllæna infusata*, Matth., abundant in drying *Sphagnum* ; **Gymnusa brevicollis*, Pk., rare in *Sphagnum* ; **Tachyporus solutus*, Er., also at Port Erin ; **T. brunneus*, F. ; **Megacronus analis*, Pk. ; *Quedius mauro-rufus*, Gr., also at Colby ; **Philonthus nigrita*, Nor., rather a widely distributed species in Man ; **Actobius cinerascens*, Gr. ; *Lathrobium terminatum*, Gr. ; *Cryptobium glaberrimum*, Hbst., common in *Sphagnum* ; **Pæderus riparius*, L. ; *Ewes-thetus ruficapillus*, Lac., common ; *E. læviusculus*, Mann., one ; **Stenus nitidiusculus*, St. ; **Lesteva sicula*, Er., pale and dark forms ; **Homalium cæsum*, Gr. ; **H. rufipes*, Fourc. ; **Phlæobium clypeatum*, Müll. ; *Clambus armadillo*, De G. ; **Anisotoma badia*, Stm., one in moss ; **Neuraphes angulatus*, Müll., two in drying *Sphagnum* ; *Pselaphus heisei*, Hbst., not uncommon ; *Bythinus bulbifer*, Reich., abundant ; **Euplectus ambiguus*, Reich., not uncommon in the drying *Sphagnum* ; **Micropeplus margaritæ*, Duv. ; **Meligethes picipes*, Stm. ; **Cryptophagus cellaris*, Scop. ; **Donacia discolor*, Pz. ; **Longitarsus atricillus*, L. ; **Phyllotreta flexuosa*, Ill., a single example of this rare "hopper,"—Mr. Champion confirms my identification ; *P. exclamationis*, Th. ; **Chætocnema hortensis*, Fourc. ; *Rhynchites germanicus*, Hbst. ; *Cænopsis waltoni*, Boh., common in very dry moss ; *Orobitis cyaneus*, L. ; **Bagous glabrirostris*, Hbst., rare ; **Balaninus salicivorus*, Pk.

III.—PORT ERIN.

Pterostichus minor, Gyll. ; **Homalota vestita*, Gr., also at Kentraugh ; **Leis-totrophus nebulosus*, F. ; **Staphylinus pubescens*, De G. ; **Stenus declaratus*, Er. ; **Homalium rivulare*, Pk. ; **H. læviusculum*, Gyll., not uncommon on the shore at Spaldrick ; **Choleva chrysomeloides*, Pz. ; *Atomaria analis*, Er. ; *Aphodius pusillus*, Hbst. ; **Apion hydrolapathi*, Kirb. ; *Barypeithes sulcifrons*, Boh., rare in moss.

IV.—COLBY GLEN.

**Ochthebius bicolor*, Germ. ; **Homalota hygrotopora*, Kr. ; **H. elongatula*, Gr. ; **H. cambrica*, Woll. ; **Dianous cærulescens*, Gyll., common ; **Bledius fracticornis*, Pk., the black form ; **Lesteva pubescens*, Mann. ; **Oxytelus sculptus*, Gr. ; **Trogophloeus fuliginosus*, Gr., one ; **T. pusillus*, Gr. ; **Micropeplus porcatus*, Pk. ; **Limnius tuberculatus*, Müll. ; *Apion punctigerum*, Pk.

V.—SNAEFELL.

**Pterostichus vitreus*, Dj.; **Bradycellus harpalinus*, Dj.; **Notiophilus aquaticus*, L.; **N. palustris*, Duft.; **Patrobis assimilis*, Chaud., in great numbers; **Ocyusa incrassata*, Muls.; **Homalota eremita*, Rye, abundant; **Arpedium brachypterum*, Gr., common; **Scydmaenus scutellaris*, Müll., also at the Curragh; **Byrrhus pilula*, L.; **Aphodius lapponum*, Gyll.; **Corymbites cupreus*, F., and var. *xeruginosus*, F.; **Otiorrhynchus maurus*, Gyll., rare.

VI.—BRADDA HEAD.

**Notiophilus substriatus*, Wat.; **Homalota gregaria*, Er.; **H. nigra*, Kr.; **H. cauta*, Er.; **Olophrum piceum*, Gyll.; **Athous vittatus*, F., under stones; **Dolopius marginatus*, L., under stones; **Apion loti*, Kirb.; **Acalles ptinoides*, Marsh., from dead heather.

Estyn, Chester:

September, 1905.

LYCÆNA ARGUS, KIRBY, VAR. HYPOCHIONA, RAMB., ON THE
NORTH DOWNS.

BY A. H. JONES, F.E.S.

On July 16th last I captured on the North Downs several small specimens of a *Lycæna* which I at once recognised as different to the usual form of *L. argus* (*ægon*) from Surrey and the New Forest. On comparing them with my series of var. *argyrognomon*, Berg., from Sierre in the Rhone Valley, I found they agreed so closely as to lead me to suppose they were that species; on submitting them, however, to Dr. T. A. Chapman he pronounced them, upon examination of the genitalia, to be *L. argus*, and were the variety *hypochiona*, Ramb.

Dr. Staudinger, in his Catalogue, gives the distribution of this form "Andalusia, Greece." I have taken it at Digne, and this year at Montserrat in Spain; the occurrence of this southern form in England is interesting, and I have no doubt that Entomologists who have collected this insect on the chalk downs between Cuxton and Shoreham in Kent will find numerous examples in their series—the type also occurs there.

The var. *hypochiona* is larger, the under-side whitish-grey, and the spots more clearly defined than in the type.

Shrublands, Eltham:

October 6th, 1905,

A NEW BRITISH FLEA: *CERATOPHYLLUS FARRENI*, SPEC. NOV.

BY THE HON. N. CHARLES ROTHSCILD, M.A., F.L.S.

PLATE VIII.

This is a very pale species. It is nearest to *C. gallinæ*, Schrank, and *fringillæ*, Walk., but is easily recognised by the modified abdominal segments and the legs.

The tubercle of the frons is prominent. The comb of the pronotum consists of 26 to 28 teeth. The mesonotum bears two rows of bristles and a very few short hairs in addition, besides a subapical row of slender spines, six on each side.

The abdominal tergites bear two rows of bristles, the anterior row being represented on the seventh tergite by two or three bristles only. The first four tergites have on each side respectively 2, 3, 2, 1 apical spines. The seventh tergite has one long apical bristle, accompanied in the ♂ by two minute hairs, and in the ♀ by two short bristles which are nearly equal in length, being about one-fourth the length of the long one. The sternites of segments 3 to 7 have in the ♂ three bristles on each side, there being in addition a short hair proximally of them on the posterior sternites; in the ♀ the number of bristles on sternites 3 to 6 is usually four.

The fore femur has on the outer side eleven lateral bristles irregularly placed, while there are two bristles on the inner surface, besides a subapical ventral one.

The mid femur bears a lateral row of six bristles on the inner side and three bristles on the outer side. The hind femur has on the outer side from two to four bristles, while there is a lateral row of seven or eight on the inner side. The hind tibia has on the outer side a subdorsal row of seven or eight bristles, the row not being quite regular; the inner side bears an oblique lateral row of six or seven.

♂. The large lateral lobe of the eighth tergite is nearly square, the distal angles being rounded off. The lobe is a little wider distally than proximally. The tuberculate area situated along the dorsal edge on the inner surface is narrower. There are fourteen long bristles at the dorsal edge of the lobe and two on the lateral surface, besides one standing near the ventral edge. The eighth sternite resembles that of *gallinæ*. It bears at the top about eight long bristles, and immediately in front of them on each side one short bristle. The apical membranous flap which projects dorsally is narrower, and is of the same shape as in *gallinæ*. The process of the clasper is long and narrow, while the finger is broad.

(Fig. A). The finger bears two long bristles at the distal (ventral) edge, standing rather close together. There is also a short bristle at the apex, besides some minute hairs; and there is a row of short hairs near the proximal (dorsal) edge. The vertical arm of the ninth sternite is broader than in *gallinæ* and *fringillæ*, while the proximal lobe of the ventral (horizontal) arm is broader, and the bristles at the proximal angle of the distal portion of this ventral arm are more numerous than in both *gallinæ* and *fringillæ*.

♀. The seventh sternite (Fig. B) is deeply sinuate. It bears a row of six or seven long bristles, and proximally of them about fifteen short ones. The eighth tergite has dorsally above the stigma on each side ten to twelve hairs arranged in two irregular rows. Beneath the stigma, along the oblique dorsal margin of the

broad lateral portion of the eighth tergite, there are two long bristles accompanied by several short hairs, the second of these bristles being the longer. Further down there are about fifteen bristles on the outer surface of the tergite, while the inner side bears three or four short spine-like bristles, besides some long ones.

Length, ♂, 1.7 mm. ♀, 2.2 mm.

We have received a single ♂ of this insect from Mr. William Farren, of Cambridge, in whose honour the species is named. The specimen in question was taken from the nest of a wood-pigeon (*Columba palumbus*) in the summer of 1905, near Mildenhall in Suffolk. Mr. J. Waterston also secured 7 ♂ and 7 ♀ of this species from the nest of a house-martin (*Chelidon urbica*) taken near Dunlaverock, Berwickshire, at the end of August, 1905.

EXPLANATION OF PLATE VIII.

CERATOPHYLLUS FARRENI, spec. nov.

A—♂. 9th Tergite.

B—♀. 7th Sternite.

148, Piccadilly, W.:

October, 1905.

The food plant of Dibolia cynoglossi, Koch.—Having taken *Dibolia cynoglossi* again at Pevensey this year in some numbers, I was able to find out its true food plant. It is said by Stephens (Man., p. 301, 1839) to be found on *Cynglossum officinale*, and Kutschera gives *Stachys recta*, but in England, at any rate, it feeds on *Galeopsis ladanum*, var. *canescens*, Schultz, a variety of the common red "Hemp Nettle." The beetle is easily swept off the plant, on which it may be seen sitting, but jumps very strongly when in the net.—HORACE DONISTHORPE, 58, Kensington Mansions, South Kensington; October 14th, 1905.

Apion brunnipes, Boh. (= *laevigatum*, Kirby), in Suffolk.—Whilst searching at the roots of *Echium vulgare* in the Lowestoft district on August 31st last for *Ceuthorrhynchus echii*, F., I came across this *Apion* in some numbers, but as I did not recognise it at the time I bottled only eight specimens, seven of them ♀s, with the bright violet coloured elytra peculiar to their sex, the solitary male being entirely black, and extremely diminutive—almost as small as *A. atomarium*.

The species was described by Kirby from specimens taken by Sheppard near Ipswich, and does not appear to have been recorded for the county since.

I do not know *Filago gallica*, the plant upon which the insect is said to pass its early stages, but as it is recorded as occurring on sandy wastes in the south-eastern portion of Britain, it is very likely to be found at the spot in question. My specimens of the *Apion* may only have been sheltering under the *Echium*, the day being a very cold and windy one. There is unfortunately a possibility of the locality being destroyed by building operations in the not very distant future.—E. C. BEDWELL, "Elmlea," Clevedon Road, Norbiton, Surrey: October 14th, 1905.

Occurrence of Amara anthobia, Villa, on the Lancashire coast.—On May 19th I captured several specimens of *Amara* at Freshfield, near Birkdale. On comparing them with examples of *A. anthobia*, Villa, which had been very kindly sent me by the Rev. G. A. Crawshaw from Leighton Buzzard, I found that one of mine, a male, exactly corresponded with his insect, and this determination has been confirmed by him. The insect, therefore, is not confined to the hitherto recorded southern localities.—J. KIDSON TAYLOR, 35, South Avenue, Buxton: September 21st, 1905.

Harpalus honestus, Duft., at Streatley, Berks.—On an afternoon in the middle of August I visited a favourite old spot of mine, the chalk hills of Streatley, near Reading. The conditions being good for the purpose, I turned over many stones on the hillside in search of *Harpalus caspius*, which proved, however, not to be about. *Licinus silphoides* was there in the greatest abundance, and *Brachinus crepitans* of course "fired off" on the lifting of almost every stone. I picked up *Amara patricia* and *A. rufocincta*, but, most noteworthy, also specimens of *Harpalus honestus*, Duft., both sexes, the male of a very bright metallic green colour, the female of a silky green, in fact, it is the most vividly brilliant beetle which we have in the genus. Fowler speaks of it in "British Coleoptera" (vol. i, p. 53) as a continental form only. The beetle looks so very different from the ordinary coal-black *ignavus* that it has been perhaps passed over as the common *Harpalus rubripes* or *æneus*. Possibly it may turn out to be the only form occurring on the chalk.

Harpalus caspius I got a week or so later, just emerging and soft, on the hills a few miles distant from this.—W. HOLLAND, University Museum, Oxford: October, 1905.

Apion astragali, Poyk., at Oxford.—At Oxford *Apion astragali* has occurred in fair numbers, in September, on *Astragalus glycyphyllos*, and the great abundance of *A. sanguineum* here in the late autumn is worth noting. I took over seventy specimens in a limited space the last time I was in the field, in the belief that some one would want what is usually looked upon as so rare a species.—ID.

A note on the Coleopterous genus Anisotoma, Illiger.—The economy of the members of the genus *Anisotoma* and its allies is so hidden in mystery, any fact that seems to give a glimpse into their life-history is worth recording. The best known method of capturing them is by evening sweeping, especially in the autumn, but large numbers of specimens have been sometimes taken in flood-rubbish. *A. cinnamomea*, Panz., is known to inhabit the truffle, an underground fungus, and I believe *A. badia*, Sturm, is sometimes found in plenty in moss. I have taken a pair of *A. punctulata*, Gyll, during February, out of the same tuft of grass away from any chance of flood. While digging up small holes in the sand last August at Braunton Burrows, North Devon, I found at the bottom of four of them three specimens of *A. ciliaris*, Schmidt, and one *A. calcarata*, Er. In holes, exactly similar and close by, I took *Bledius pallipes*, Gr., *Dyschirius impunctipennis*, Daws., and *Bembidium pallidipenne*, Ill. Since then, when

turning over small stones in a sand pit, I came across a pair of *A. calcarata* under one stone, one of the beetles being in a small burrow. Most probably the natural habitat of most of the species of *Anisotoma* is underground, and I think that their occurrence in numbers in flood rubbish, in company with *Geodephaga*, &c., points to this.—NORMAN H. JOY, Bradfield : September 29th, 1905.

Leptusa analis, Gyll., &c., in Teesdale, Co. Durham.—About the middle of June I had the pleasure of spending a few days with Mr. Gardner at Egglesstone in Teesdale, where, under my host's kindly guidance, I was enabled to add several good things to my collection. The most interesting beetle was undoubtedly *Leptusa analis*, Gyll., of which I took two rather small examples from a fungus. So far as I know this species has been taken but twice in England: in Dean Forest by the late W. G. Blatch, and more recently in Devonshire, where Mr. J. H. Keys has captured several examples. At Sharnbury Gill, a little known wooded dene in the heart of the moors, *Melasoma cereum*, L., occurred in plenty on alders, and the rare Melandryid, *Abdera flexuosa*, Pk., in a *Polyporus* (*P. radiatus*) growing on the same tree. In Teesdale proper we found *Agathidium nigripenne*, Kug., several species of *Epuræa*, and divers *Staphylinidæ*, in fungus; *Anthobium sorbi*, Gyll., *Cychramus* and *Anaspis geoffroyi*, Mull. (*fasciata*, Forst.), and its var. *subfasciata*, Steph., on hawthorn blossom; *Sinodendron cylindricum*, L., in fallen ash trees, in great profusion; *Cis bilentatus*, Ol., and *Tetratoma fungorum*, F., in a large white fungus growing on birch; and *Cis festinus*, Pz., and *C. nitidus*, Herbst, in a *Polyporus*, attached to beech, beneath the bark of which *Cerylon ferrugineum*, Steph., and various species of *Rhizophagus* occurred. *Rhagium bifasciatum*, F., was noticed in a hard and apparently sound beech, and from the same tree we obtained not a few *Priobium castaneum*, F., and *Ptilinus pectinicornis*, L., pairs of the former being found in cop. beneath the beech bark. On the moors, *Corymbites cupreus*, F., and the var. *æruginosus*, F., were flying in plenty, and *Calathus micropterus*, Duft., was fairly common running about the heath. *Melanotus rufipes*, Herbst, *Liodes humeralis*, Kug., *Tropiphorus tomentosus*, Marsh., *Aphodius lapponum*, Gyll., &c., were also met with. Some Longicorn larvæ found in alder in Sharnbury Gill we thought to be those of *Saperda scalaris*, L., a biennial species. My thanks are due to Mr. Newbery—to whose kindness I am indebted in many ways—for identifying the *Leptusa*.—RICHARD S. BAGNALL, Winlaton-on-Tyne : October 9th, 1905.

Lepidoptera in Scotland.—This year I was fortunately able to do a little collecting, chiefly in the north of Scotland, during the month of June. The season was too early for any great variety of species, at any rate in the higher latitudes. But the following list will show that much might be done by assiduous work on the high moors, especially as I was prevented by lameness from transgressing beyond the roads or beaten tracks. On the north coast the following species were obtained: *Argynnis selene* (one), *Hadena glauca*, *Scodiona belgaria*, *Ypsipetes impluviata*, *Eupithecia castigata* (with some fine varieties), *E. nanata*, *Rumia crategata*, *Botrys fuscalis*, *Herbula cespitalis*, *Dicrorampha politana*, *Cnephasia musculana*, *Tortrix ministrana*, *Phoxopteryx biarcuana*, *lunana*, and *myrtillana*, *Penthina dimidiana*, *Eupacilia ciliella*, and what appears to be a very brilliant and unusual form of *Grapholitha ulicetana*, which occurred on the cliffs near the sea, far from any gorse.

Halonota pflugiana and a few *Grapholitha campoliliuna* had just emerged. The only Tortrix that was really abundant was *Grapholitha naryana*, var. *geminana*, which occurred in multitudes wherever any birch bushes could be found to grow. *P. mixtana* was about, but much worn, and I took one *Clepsis rusticana*.

Moving southwards to Aviemore about the 12th of the month, insects were much more in evidence. *Argynnis selene* and *euphrosyne*, *Cænonympha pamphilus*, and *Lycæna alexis*, were as yet the only butterflies, if we except the two smaller whites.

On the 16th, driving homewards through the forest of Rothiemurchus, about an hour and a half before sunset, I came upon a patch of ground which was evidently the chosen home in that district of *Bombyx rubi*. It was a fine sight to see the males careering over the moor with their peculiar waving flight; then suddenly yielding to some impulse, one of them would every now and then soar straight upward at headlong speed till the eye could no longer follow it; and after a half minute or so would swoop down as rapidly and subside beneath the thick heather. During a drive of nearly a quarter of a mile this spectacle was renewed again and again; yet, strange to say, though we passed through similar scenery for at least half an hour not another *rubi* presented itself; nor did I see the insect anywhere else during my tour. The day was an extremely hot one, and this may have accounted for the strange antics performed by the insect; but one could not help marvelling at the prodigious vitality manifested, and the abandon of enjoyment evidently experienced. I was forcibly reminded of the drumming snipe in Wicken Fen at the same season of the year.

I expect a search for larvæ would have well repaid the collector. The few that I turned up were mostly common species: *Pæcilocampa populi*, *Cheimatobia brumata* and *boreata*, *Hybernia defoliaria*, *Hypsipetes elutata*, **Cabera pusaria* and *exanthemata*, but I could not search at night, which is the best method of obtaining them.

Among Noctuæ, *Cymatophora duplaris* was common by beating, *Xylophasia rurea* and *Hadena dentina* on posts. Among the Geometræ, one specimen of *Eupithecia virgaureata*, a few *absynthiata*, *satyrata*, and *helveticaria*, the latter nearly over. The beautiful white var. of *Cidaria corylata* was rare. No other species of interest was seen.

The Tortrices were beginning to appear in numbers. Besides most of the Sutherlandshire species, I found *Amphysa gerningana*, *Penthina sauciana* and *marginana*, *Coccys vacciniana*, *C. ustomaculana*, *Mixodia schulziana*, *Phoxopteryx uncana*, *P. unguicana*, *Dicrorampha plumbagana* and *tanacetii*, *Stigmonota cognatana* and *cosmophorana*, *Catoptria cana*, *Pædisca bilunana*, *Ephippiphora cirsiiana* and a melanic form of *Spilonota ocellana*.

The Tineina were more interesting. *Nemophora swammerdamella*, *N. schwartziella* and *pillella*, all uncommon. *Plutella dalella* and *annulatella*. *Gelechia solutella*, in splendid condition, *G. ericetella*, swarming everywhere; *G. sequax*, a very fine form, and *G. proximella*. *Incurvaria muscallella* and *æhlmanniella*, *Swammerdamia griseocapitella*, *Ecophora subaquilella*, *Gracilaria tringipennella* and *elongella*, *Argyresthia conjugella* and *arcuthella*, *Glyphipteryx thrasonella*, *Pancalia leucomhoekella*, *Elachista kilmunella* and *eleochariella*. *Coleophora fuscinedella*, *ochrea*, *junci*-

* Surely, larvæ of *C. pusaria* and *exanthemata* would not be found in the middle of June.—G.T.P.

colella, and *cæspititiella*, *Ocnerostoma piniariella*, *Chauliodus chærophyllællus*. *Orniz loganella* and *scoticella*, *Lithocolletis faginella*, *pomifoliella*, *froelichiella*, *caledoniella*, *spinolella*, *stettinensis*, and *heegeriella*; and most surprising of all, a specimen of what Mr. W. Holland has returned to me as *Oxyptilus teucriti*, from the extreme north of Sutherlandshire.

Three days subsequently at Rannoch produced no additions of interest; all the species taken being well known inhabitants, unless *Scopula decrepitalis* be considered worthy of remark. I am indebted to the kindness of Dr. McCallum of Rannoch and Pitlochry for specimens of some of the local rarities, which I was too late for, as *Trochilium scolæforme*, *Asteroscopus nubeculosus*, *Nyssia lapponaria*, *Fidonia carbonaria*, and *Anarta cordigera*. Had I been able to sugar or collect at night, I have no doubt the above list would have been largely increased. As it is, it was sufficient to give one a very pleasant impression of the Scottish collecting in the early summer.—C. T. CRUTTWELL, Ewelme Rectory, Wallingford: Oct., 1905.

Note on Eupithecia extensaria.—Whilst on a ten days' collecting expedition at Wicken Fen, in June last, in company with Mr. T. A. Lofthouse, on the 15th we went over to Hunstanton to ascertain if *Eupithecia extensaria* was yet in evidence. Though apparently not yet fully out, it was very satisfactory to find that the species still held its own on the old ground.—GEO. T. PORRITT, Edgerton, Huddersfield: October 6th, 1905.

Cnephasia communana, H.-S., in Surrey.—On June 4th, 1904, wishing to find for the late Mr. C. G. Barrett the almost (or quite) unknown larva of *Tortrix osseana*, I walked over to a rough piece of ground some six miles from here where I had noticed the imago commonly the previous summer; after a vain search for two hours I was coming away, but noticing some small things on the wing, I put up my net, and soon beat from one of the scattered bushes a *Cnephasia* ♀, which I was about to throw away as "only *virgaureana*" when it struck me that it was an unusually early date for this species to be on the wing, and upon closer examination I saw I had netted something very different. I soon beat out five more, and having no more boxes with me returned home. Luckily I had in my cabinet a single specimen of *communana* taken years ago in Cambridgeshire, and by its aid was enabled to make out my captures. I went again in the afternoon and took twenty more, nearly all in the finest condition. Upon sending some to Mr. Barrett he at once confirmed my opinion, and remarked that he had seen no freshly captured specimens for a very long time. On June 3rd last I found it again, but owing to the strong wind could only capture a very few; then came a week of heavy rain and bitterly north-east winds, quite preventing any collecting, and when I paid my next visit it was almost over and in quite worthless condition. I may note two points of interest—(1) It is apparently *exceedingly* local; (2) Its (for a *Cnephasia*) exceptionally early appearance, for in normal seasons it must begin to emerge the last week in May! I was unable to find the larva on April 20th, but hope to do so next spring; it is I expect polyphagous on low plants.—A. THURNALL, Thornton Heath: Sept. 25th, 1905.

Vanessa antiopa in Kent.—While cycling in the neighbourhood of Ash, near Sandwich, on September 12th, I saw a very fine specimen of *V. antiopa*; not

having a net I was unable to capture the insect, it flew very slowly in front of me, and settled on some dwarf elms by the roadside. I made a futile attempt to capture it with my cap, with the usual result. I visited the place on the two following days, but did not see it again. It appeared to be a female and in fine condition.—T. DUDLEY WILLSON, Dudley House, Ramsgate: October, 1905.

Some Welsh Hymenoptera, with note on Oxybelus mucronatus and its prey; also possible relationship of Osmia xanthomelana and Sapyga.—While painting at Aberdovey (Merioneth), in July, 1904, I spent a few hours on the sandhills, &c., after *Hymenoptera*. The weather was as a rule suitable, but the commoner species, with the exception of *Pompilus plumbeus*, *Mimesa unicolor*, *Mellinus arvensis* and *Cerceris arenaria*, were by no means abundant. *Oxybelus* was, however, well represented, and I obtained a good series in fine condition of both *mucronatus* and *mandibularis*; *uniglumis* being as usual most in evidence. I was much interested watching the beautiful silvery ♀s of *mucronatus* dragging the bodies of an almost equally silvery (♂) fly (which Colonel Yerbury has kindly named as *Thereva annulata*, Fab., to their burrows. I took them, however, with both sexes of this fly, and as the (♀?) is brown it was not solely a question of "birds of a feather." *O. nigripes* I searched for in vain. *Tachytes unicolor* occurred freely on flat patches of sand, as did *Agenia variegata* on shale walls. The common *Tachytes pectinipes* was less abundant, but among the few I took was one with a golden face, the usual characteristic of the rare *latiraleis*. Mr. Saunders has, however, relegated it to its proper place as a var. of the humble *pectinipes*. *Sapyga 5-punctata* swarmed along all the roads, and its behaviour in connection with a nest of the scarce *Osmia xanthomelana* may be worth noting, since *Sapyga's* method of obtaining a livelihood seems to be not definitely ascertained as yet. Though I watched the burrows of the *Osmia* on many occasions, I was never able to see *Sapyga* enter one. The fact remains however (for what it may be worth) that the *Sapygas* (all ♀s) took, at least, a violent interest in the *Osmias* (also ♀s). I frequently saw the vicinity of the burrows clear of *Sapyga* at one moment, while directly an *Osmia* returned there were, as if by magic, perhaps half-a-dozen *Sapygas* flocking round the burrow she had entered. Directly she left (but not until then) the *Sapygas* would go to the mouth of the burrow and apparently peer into it—but, as I have said, I did not see one actually enter. I can only say for certain that the *Sapygas* were exceedingly interested in every movement of *xanthomelana*. Of *Colletes davesiana*, whose burrows swarmed all round that of the *Osmia*, they certainly took not the smallest notice, and I cannot help thinking that something more than curiosity prompted them to act as they did.—C. H. MORTIMER, Holmwood: Oct. 10th, 1905.

Aculeate Hymenoptera in the New Forest.—I spent about two months this year in the New Forest at Brockenhurst, from July 7th to the end of August. The first three weeks proved very successful for collecting, but after that the weather changed, and the rest of the time might be called distinctly bad. In the following list the number of specimens is stated when less than half-a-dozen or more were taken: *Methoca ichneumonides*, 3 ♀. *Mutilla europæa*, 2 ♀ and 1 ♂. *Pompilus plumbeus*, ♀ and ♂; *P. pectinipes*, 2 ♀; *P. minutulus*, 1 ♀. *Salix affinis*,

3 ♀. *Agania hircana*, ♀ only. *Astata stigma*, ♂ and ♀ plentifully. *Spilomena troglodytes*, 1 ♀. *Stigmus solskyi*, 1 ♀. *Pemphredon morio*, 1 ♀, nesting in a decayed beech-stump. *Passalæus corniger*, 3 ♀. *Mimesa shuckardi*, ♀ and ♂; *M. equestris*, 1 ♂ and 1 ♀ on wild carrot; *M. dahlbomi*, 3 ♀, nesting in a decayed and dry beech stump. *Cerceris labiata*, ♀ and ♂. *Oxybelus mandibularis*, 3 ♀. *Crabro cetratus*, 3 ♀; *C. auxius*, 1 ♀; *C. dimidiatus*, ♀ and ♂. *C. signatus*, 2 ♀; *C. scutellatus*, ♀s only; *C. interruptus*, 1 ♀; *C. lituratus*, 2 ♀ and 1 ♂; *C. vagus*, ♀ and ♂; *C. panzeri*, ♀ and ♂. *Eumenes coarctata*, 1 ♀. *Odynerus reniformis*, 1 ♀; *O. trifasciatus*, 1 ♀, *O. trimarginatus*, 1 ♀; *O. gracilis*, 1 ♀ and 1 ♂: *Halectus prasinus*, ♀ and ♂. *Andrena denticulata*, ♀ and ♂. *Nomada obtusifrons*, 1 ♀. *Cœlioxys acuminata*, 1 ♀; *Stelis phœoptera*, 2 ♀; *S. octomaculata*, 1 ♀. *Osmia leucomelana*, 1 ♀.—G. ARNOLD, University of Liverpool: October, 1905.

Pocota apiformis, Schrank, at Colchester.—On May 9th I took a fine specimen of this rare Syrphid flying round a birch tree; this is the first example recorded from Essex.—BERNARD SMITH HARWOOD, 94, Station Road, Colchester: October 14th, 1905.

Tropideres sepicola, F., at Colchester.—On September 7th I was fortunate in beating an example of this rare beetle from hazel in a wood near here. Subsequent visits failed to produce another. I am indebted to Mr. G. C. Champion for naming the insect, which had not previously been recorded from Essex.—ID.

Libellula fulva at Colchester.—I captured a fine specimen of this rare dragonfly on June 10th; I netted it when it was on the wing, supposing it to be *L. depressa*!—ID.

Macropterus Nabis, &c., at Colchester.—During the present season I have taken macropterous specimens of three usually brachypterous Hemiptera: *Nabis brevipennis*, *N. lativentris*, and a ♀ *Leptopterna dolabrata*; the macropterous ♀ of this last has not I think been previously recorded from Britain. All the specimens were taken within two miles of the town.—ID.

The late J. W. Douglas as a writer on Coccidæ.—I am indebted to Mr. C. W. Dale for pointing out that in the obituary notice of Mr. Douglas in our last Number no mention was made of his connection with the study of *Coccidæ*. This I much regret, especially as the pages of this Magazine have so often contained valuable papers from his pen on the subject; beyond this, as Mr. Dale suggests, his work has encouraged many others to take up the study of this difficult group of insects, so that whereas at the time he began writing he was practically alone, the *Coccidæ* have since been ably studied by Messrs. Newstead, Comstock, Green, Maskell, and others.—E. SAUNDERS, St. Ann's, Woking: October 12th, 1905.

Reviews.

A STUDY OF THE AQUATIC COLEOPTERA AND THEIR SURROUNDINGS IN THE NORFOLK BROADS DISTRICT: by FRANK BALFOUR BROWNE, M.A., F.R.S.E., F.Z.S. (Reprinted from the Transactions of the Norfolk and Norwich Naturalists' Society, vol. viii).

We have much pleasure in calling attention to this important paper, which is a valuable contribution to the bionomics of an interesting and, at present, perhaps rather neglected section of our native *Coleoptera*. The district investigated has long been known to be more than usually rich in water-beetles, and the thorough and exhaustive manner in which Mr. Balfour Browne has done his work is evident from the number of "collections"—no fewer than 1079 in ten months—from which his data and observations have been drawn. 76 species of *Hydradephaga* (not including the *Gyrinidae*), and 41 species of the more aquatic forms of *Palpicornia*, comprising all but a very few of those known to occur in Norfolk, have been observed; and the elaborate tables on pp. 70 and 71 show at a glance the distribution and relative abundance of each species in the different sub-districts. A large proportion of our rarer water-beetles are included in this list, and the finding again, after so many years, of *Hydroporus scalesianus* in the county whence the original specimens described by Stephens came, is of exceptional interest, as is also the re-discovery of the long-lost fen species, *Rhantus adspersus* and *Graphoderes cinereus*. The notes on distribution and dispersal, and the table of associated species, are of very high value, and the paper as a whole is well worthy of careful study by every one interested in our Coleopterous fauna.

REPORT OF WORK OF THE EXPERIMENT STATION OF THE HAWAIIAN SUGAR PLANTERS' ASSOCIATION: DIVISION OF ENTOMOLOGY. Bulletin I, Pt. I, pp. 90-111, Pls. 1—V, LEAF HOPPERS AND THEIR NATURAL ENEMIES (Pt. iii, *Stylopidae*). By R. C. L. PERKINS.

The first of these interesting Bulletins on the Enemies of the Leaf Hoppers was noticed in the August Number of this Magazine, and dealt with the *Dryinidae*, a family of parasitic *Hymenoptera*. This 3rd Part deals with the *Stylopidae*, a parasitic family of the *Coleoptera*. In this country *Stylopidae* are rare, and chiefly represented by the genus *Stylops* which attacks Aculeate *Hymenoptera*; the other known genera, *Elenchus*, parasitic on "Leaf Hoppers," and *Halictophagus*, of doubtful habits, being of extreme rarity. In America, *Elenchus* and *Halictophagus* appear to be more or less abundant and constant parasites on Leaf Hoppers, and it is suggested to employ them as a means of checking the spread of the "hoppers." Mr. Perkins observes that "hoppers" which have nourished a ♂ parasite invariably die after the emergence of the Stylopid, partly, he thinks, because the hole left in the integument lets in the air, and partly because round the orifice a fungoid growth forms; this fungus has also been noticed round the protruded head of the ♀, and is invariably fatal. So that to effect a satisfactory check on the Hoppers, he thinks the fungus should be introduced as well as the Stylopid. In his remarks on the genus *Halictophagus*, Mr. Perkins inclines to the belief that this genus is a Jassid parasite and not a Hymenopterous one, and as he says he has not the literature with him to deal with this point, I quote the account of the original capture of the ♂ by J. C. Dale, as quoted by Curtis in his British Entomology from Mr. Dale's letter:—

"I took *Halictophagus curtisii* the 15th of last August, in company with the males of *Halictus æratus*, which were in plenty, by brushing some long coarse grass and thistles close to the sea on a rock called Durdle Door at Lulworth Cove; in one of the *Halicti* I found a pupa, so exactly at the apex of the abdomen, that I mistook it for an appendage and killed the bee; otherwise I should have bred the imago as it was nearly matured."

As the locality is just such as would have abounded in Homopterous life, Mr. Perkins' belief is, I think, very probably likely to prove correct. The treatise ends with a classification of the *Stylopidae* and a Bibliography, and is illustrated with four excellent uncoloured plates. It is altogether a most interesting and instructive pamphlet.—E. S.

Societies.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: *Thursday, August 24th, 1905.*—MR. HUGH MAIN, B.Sc., President, in the Chair.

Mr. Carr exhibited *Triana (Acronycta) tridens*, ♀ from Clandon with larvæ, and bred specimens of *T. psi*. Mr. Harrison, a short series of *Phorodesma smaragdaria* bred from Essex larvæ. Mr. Main, a large exotic Longicorn beetle taken alive at Silvertown. Mr. West (Greenwich), ordinary undeveloped forms and developed forms of the Hemipteron, *Nabis brevipennis* from Darent.

Thursday, September 14th, 1905.—The President in the Chair.

The President referred in suitable terms to the death of Mr. N. E. Warne, for years an active Member of the Society.

Mr. South, a series of *Acidalia virgularia (incanaria)* bred about the end of April, and pointed out that the specimens were unusually dark and large, whereas a series bred in July from parents in the April brood were small and light like the ♀ from whose ova the April brood originated; (2) *Rhacodia emargana*, with v. *caudana*, v. *effractana*, and v. *excavana*; and (3) a bred series of *Coremia unidentaria*, and contributed notes. Mr. Goulton, excellent photographs of Lepidopterous larvæ. Mr. Smallman, a beautiful xanthic variety of *Cænonympha pamphilus*, taken on Wimbledon Common in August. Mr. Kaye for Mr. Richards, (1) series of *Acidalia dilutaria*, one of normal forms, the other of darker and yellowish specimens; (2) *Macaria liturata*, v. *nigrofulvata*; and (3) pupæ of *Anarta myrtili*. Mr. West (Greenwich), a large collection of butterflies from West Africa. Mr. Main, a photograph of a larva of *Phorodesma smaragdaria*. Mr. Sich, larvæ and cases of *Coleophora laripennella* on *Chenopodium*. Mr. South, larvæ and case of *C. limosipennella* from birch at Oxshott. Mr. Penn-Gaskell, ova clusters of *Oeneria dispar* from San Sebastian, where they were abundant in early September. Dr. Chapman, examples of *Erebia scipio* from the Basses Alpes, and the white glistening cocoons of the Coccid *Eriopeltis festuca*, and contributed notes.—HY. J. TURNER, *Hon. Secretary*.

ENTOMOLOGICAL SOCIETY OF LONDON: *Wednesday, October 5th, 1905.*—MR. F. MERRIFIELD, President, in the Chair.

Mr. J. R. Davidson, of Drumsheugh Gardens, Edinburgh, was elected a Fellow of the Society.

The President said that since the last meeting the University of Oxford had conferred upon Commander J. J. Walker, R.N., one of the Secretaries, the degree of M.A., *honoris causa*, for services to Entomological Science.

Mr. Edward Harris showed living larvæ of the Longicorn beetle, *Cordylomera suturalis*, Chev., taken from a log of mahogany imported from the Sekondi district of the Gold Coast, together with the perfect insect, which was dead at the time the discovery was made. Mr. A. T. Rose, a remarkable melanic specimen of *Catocala nupta*, taken by Mr. Lewis in his garden at Hornsey, in September. The coloration of the lower wings was of a dull brown, and all the markings of the upper wings strongly intensified. Dr. Norman H. Joy, *Coleoptera* taken during a three days' trip to Lundy Island in August, including *Melanophthalma distinguenda*, Com., a species new to Britain; *Stenus ossium*, var. *insularis*, a variety apparently new to science; and a series of *Ceuthorrhynchus contractus*, var. *pallipes*, Crotch, a form peculiar to the island. Mr. Alfred Sich, examples of *Argyresthia illuminatella*, Z., two of the four specimens taken near Hailsham, Sussex, on June 15th this year. They were beaten off *Pinus*, and until examined with a lens were supposed to be *Oenoserotoma pinariella*, of which species two were also exhibited for comparison. Mr. W. J. Lucas, the larva, cocoon, and the subsequent imago of an "ant-lion," *Myrmeleon formicarius*, from two Spanish larvæ given him by Dr. T. A. Chapman last autumn. The difference in size between the small larva and the large perfect insect was remarkable. He also showed a living ? of *Stenobothrus rufipes*, taken in the New Forest at the end of August, and kept alive feeding on grass. Mr. G. C. Champion, several examples of *Lynezyllon navale*, L., from the New Forest, whence it had not been previously recorded. Mr. A. H. Jones, series of *Lycæna argus* var. *hypochiona*, Ramb. (*ægon*, Schiff.), taken on the North Downs this year, approaching the form *L. argyrognomon*, taken not uncommonly in the Rhone Valley. Together with these he had arranged for comparison typical British *L. argus*, L., *L. var. corsica* from Tattone, Corsica, and a series of *L. argyrognomon*, Brgstr. (*argus*, auctorum), from Chippis near Sierre. Col. J. W. Yerbury, specimens of *Hammerschmidtia ferruginea*, Flin., the first authentic British specimens taken at Nethy Bridge this year; *Microdon latifrons*, Lw., wrongly identified as *M. devius*, and under this name recorded in Verrall's "British Flies"; *Chamæsyrrhus scævoides*, Flin., a single specimen swept on June 15th, 1905, in the Abernethy Forest near Forest Lodge; and *Cynorrhina fallax*, L., which insect occurred in some numbers at Nethy Bridge during the same month. Mr. H. J. Turner, series of four species of the genus *Coleophora*, *C. alcyonipennella*, *C. livella*, *C. albitarsella*, and *C. badiipennella*, together with the larval cases mounted in situ on the ruined leaves of their respective food plants; also, living larvæ and their cases, of *Gonioloma limoniella* on *Statice limonium*, *Coleophora obtusella* on *Juncus maritimus*, and *C. glaucicolella* (?) on *Juncus glaucus*, which three species he had just received from Mr. Eustace R. Bankes, who had obtained them in the Isle of Wight. Commander J. J. Walker read a paper by Mr. A. M. Lea entitled "The Blind *Coleoptera* of Australia and Tasmania," and exhibited specimens of *Ilaphanus stephensi*, Muel., from Watson's Bay, Sydney, N.S.W., and *Phycochus graniceps*, Broun, and *P. sulcipennis*, Lea, from Hobart, Tasmania.—H. ROWLAND BROWN, M.A., *Hon. Secretary*.

ANTIPODEAN FIELD NOTES.

III.—A SKETCH OF THE ENTOMOLOGY OF SYDNEY, N.S.W.

BY JAMES J. WALKER, M.A., R.N., F.L.S.

(Continued from page 233).

We now come to the *Coleoptera*, the Order of insects perhaps best represented of all in the Sydney district; and my experience there enables me to state that, outside the more luxuriant regions of the Tropics, there are few if any localities where a really fine and handsome series of beetles can be so readily brought together in a short time by a diligent collector. The number of species occurring within a radius of twenty miles from Sydney can hardly, at the lowest estimate, fall short of 2000, and all the leading groups, with possibly the exception of the *Brachelytra*, are more or less conspicuously represented; while the *Sternoxi*, the *Phytophaga*, the Longicorns, and especially the weevils, present an almost endless variety of curious and interesting forms. Most of these are, however, not readily to be found by the newly-arrived Coleopterist, unless he happen to arrive at Sydney in the early part of the summer, when the number of large and showy beetles to be seen everywhere in the "bush" will not fail to compel his admiration.

At the time of my first visit to Sydney, in the middle of February, 1900, very many species of *Coleoptera* were over for the season, and comparatively few were in evidence in the open. But after a few preliminary excursions beetles were found abundantly enough; and I found that the most remunerative method of collecting, at this time of year and for several months afterwards, was to pick off the flakes of exfoliating bark from the trunks of the gum-trees into a net, or still better, into an inverted umbrella. The quantity and variety of insect life revealed in this way is at times quite startling, and it is as well to "stand from under" when an unusually large piece of bark is pulled off, or the collector may find himself in a veritable shower-bath of beetles, cockroaches, centipedes, and spiders little and big; some of the latter with legs extending over a space of five or six inches in diameter, are it is true harmless enough, but are none the less somewhat unpleasant creatures to get down one's back. The very poisonous scarlet and black spider, *Latrodectus hasselti* (identical with the notorious "Katipo" of New Zealand), is sometimes found in this situation, but is more frequently seen under logs and stones in dry places, where it preys chiefly on large terrestrial weevils and other beetles. Scorpions, too, are often rather common under bark, especially in the Illawarra district, but are of small size and sluggish habits; and more than once I have met with venomous snakes lurking under the large sheets of loose bark on fallen trees.

It is here possible to refer to only a few of the multitudinous forms of beetles which hide, during the day, under the flakes of bark on the *Eucalypti*. The most numerous individually are several species of the Elaterid genera *Monocrepidius* and *Lacon*, the latter varying in size from that of a small *Cryptohypnus* up to nearly an inch in length. Next in point of numbers come a very interesting series of *Carabidæ*, whose flattened bodies are admirably adapted to their somewhat confined quarters. The smaller members of the genera *Trigonothops*, *Xanthophæa*, *Surothrocrepis*, *Ectroma*, *Philophlæus*, *Agonocheilus*, etc., are always to the fore, with more rarely a rather fine species of *Demetrius* (*brachinoderus*, Chaud.); and in early summer the larger and exceedingly beautiful blue *Ænigma iris*, Newm., and *Helluosoma cyaneum*, Cast., are met with rather sparingly. All these are remarkable for their activity, especially the two last-mentioned, but in this respect they are far surpassed by the species of the characteristic Australian genus *Silphomorpha*, which look like miniature cockroaches, and run even faster; and the yet more anomalous *Adelotopus*, almost like a *Gyrinus* in facies, and with similarly divided eyes. A good many interesting small *Clavicorns* are found in this situation, with an endless variety of *Coccinellidæ*, mostly of the genus *Rhizobius*, some of them of relatively large size, and several species of the curious and very sluggish Lamellicorn genera *Mæchidius* and *Epholcis*; various interesting forms of *Cleridæ*, of which the flat brown *Natalis porcata*, F., is the largest; and a goodly number of *Heteromera* (*Nyctobates*, *Adelium*, *Menephilus*, *Pterohelæus*, *Apellatus*, *Ananca*, and the brilliantly metallic but evil-smelling species of *Amarygnus* and *Chalcop-terus*). Our *Tenebrioides mauritanicus*, L., more than once surprised me by turning up under bark in the "bush" far away from any habitation. A few Longicorns are also to be got in this way, including several species of *Phoracantha*, and the largest Prionid of the district, *Mallodon figuratum*, Newm., is sometimes to be found at the end of summer. The very remarkable Paussid, *Arthropterus brevis*, Westw., is common, even in the Domain, where I first had the satisfaction of witnessing its well-marked power of "crepitation;" the volatile liquid which it emits is deep yellow in colour, has exactly the same smell as that given off by our familiar *Brachinus crepitans*, and stains the fingers in the same manner. Two or three other *Paussidæ*, one, *Phymatoperus piceus*, Westw., being a very fine form, occur sparingly in the Illawarra district, but I have never found any of the species in the company of ants.

Thick bark, separating from the trunks of fallen trees and logs,

produces another equally interesting set of beetles, especially in the Illawarra. Here I have found, among many other species, the large and handsome *Carabid*, *Homalosoma cyaneum*, Cast., and the smaller but equally interesting *Lacordairia cychroides*, Cast., *Moriodesma parramattensis*, Cast., and *Siagonyx mastersi*, MacL. The very fine *Cucujidæ*, *Ipsaphes bicolor*, Olliff, and *I. mærosus*, Pasc., are both rare, as are also *Hectarthrum brevifossum*, Newm., and the curious linear *Gempylodes tmetus*, Oll.; but *Brontes lucius*, Pasc., and *B. militaris*, Pasc., *Dendrophagus australis*, Er., various species of *Meryx*, *Bothrideres*, *Dere-taphrus*, *Brachypeplus*, *Teretrius*, *Platysoma*, and other *Clavicornis* are more or less plentiful. A very handsome bronzy *Heteromeron*, with curiously spiked thorax, *Blepegenes aruspex*, Pasc., sometimes occurs rather commonly, with *Platydesma* and the allied blue *Ceropria peregrina*, Pasc., and the rarer black *C. vulga*, Pasc. Many species of weevils, too, are found in this way, notably several forms of *Poropterus*, not unlike *Acalles* on a large scale; also the interesting *Brentidæ*, *Ceocephalus internatus*, Pasc., *C. tenuipes*, Pasc., and *Trachelizus howitti*, Pasc., as well as the pretty little red and black *Cossonus præustus*, Redt., and some interesting small forms of *Scolytidæ*.

Turning over stones I have never found very productive, but logs always repaid examination, when not too much infested with *Termites*. The fine *Scaritidæ* so plentiful in some parts of the interior of Australia are not well represented near Sydney, only one *Carenum* (*bonellii*, Brullé) having occurred to me; but the large and robust black *Scaraphites nacleayi*, Westw., is still sometimes taken on the same ground near Darling Point, now part of the city, where it was first found fully forty years ago. The *Carabidæ* to be obtained under logs include the pretty red spotted *Episcomius australis*, Dej., the large and handsome *Carabus*-like *Pamborus alternans*, Latr., the flat brown *Helluo costatus*, Bon.; *Morio australis*, Cast. (usually on heaps of sawdust at the Illawarra sawmills), several species of *Notonomus* (allied to *Pterostichus*), one or two of them, as *N. regalis*, Cast., and *N. triplogenoides*, Chaud., being very fine and conspicuous beetles; *Eutoma læve*, Cast. (rare), and several species of *Clivina*, of which some, as *C. procera*, Sloane, are of quite respectable size. *Pheropsophus verticalis*, Dej., is not uncommon in rather damp places, and is a very efficient "Bombardier;" and the singular sluggish dull black *Mystro-pomus subcostatus*, Chaud., whose facies somewhat recalls that of *Blaps*, also possesses a well-marked power of "crepitation." It is found not rarely under deeply embedded logs in the National Park and Illawarra. In wet places under logs, *Chlænien marginatus*, Dej.,

and *australis*, Dej., *Dicrochile goryi*, Bdv., and the fine *D. gigas*, Cast. (in the National Park), and the beautiful green *Hololeius nitidulus*, Dej., occur, but the last-mentioned is very rare. Three or four species of *Passalidæ* of considerable size, belonging to the genera *Aulacocyclus* and *Mastochilus*, are met with under the larger logs, with the fine stag-beetles *Lissonotus nebulosus*, Kirby, and *Lamprima ænea*, Fab., the last-mentioned being often seen on the wing, or walking about in the sunshine. The curious small Coprid, *Cephalodesmus armiger*, Westw., is also somewhat diurnal in its habits. In the Illawarra in April, 1903, I found the females of this beetle busily engaged in filling their burrows under the logs with fresh minced-up leaves of clover and other low-growing plants, presumably as food for the larvæ; a habit which recalled to my recollection the proceedings of the still more singular *Lethrus*, which I had observed in Turkey many years ago provisioning its burrow with vine leaves. *Liparochnus silphoides*, Harold, allied to *Trox*, but having the power of rolling itself up like an *Agathidium*, only in a lesser degree, and a fine species of *Bolboceras* (*proboscidium*, Schreib.), are met with but rarely. Among the *Heteromera* may be mentioned the curious cylindrical *Achthosus westwoodi*, Pasc., and *A. laticornis*, Pasc., the latter usually found on the sawdust heaps in company with *Morio australis*; one or two fine species of the genus *Cardiothorax*, and especially the lovely little velvety scarlet *Lemodes coccinea*, Bohem., of which closely packed companies of a hundred or more may be sometimes seen on the fungoid growth beneath damp logs, looking almost like patches of fresh blood. The large terrestrial weevils of the genera *Acantholophus*, *Talaurhinus*, and *Psolidura*, the last remarkable for the conspicuous carwig-like armature of the abdomen in the male, are most frequently taken under logs, though occasionally they are found walking about in the open. Fungi on decayed timber produces some very pretty forms of *Erotylidæ* (*Episcaphula*, *Thallis*, &c.) with *Platydemæ* and the other small *Heteromera*. On stripping off bark, especially when it is rather fresh, one constantly meets with larvæ of *Buprestidæ*, *Longicornes*, &c., and huge grubs of Lamellicorn beetles abound under the larger logs, but it is not often that the perfect insects are found in these situations.

Eucalyptus boughs lying on the ground in the "bush" which retain their dried leaves for an almost indefinite time, are, as already stated, excellent "traps" for *Coleoptera*. Several species of *Carabidæ*, including the prettily embossed little forms of *Homothæ*, and the *Heteromera*, *Adelium genivale*, Pasc., and *porcatum*, Fab., the rough black *Seirottrana catenulata*, Bdv., and the little red-spotted *Platydemæ 4-spilotum*, Hope, are always to be found under such boughs, and by

shaking them over paper many pretty little *Staphylinidæ*, *Clavicornes*, *Cleridæ* (notably the lovely little *Lemidia hilaris*, Newm., most vividly coloured with vermillion and blue-black when alive), *Longicornes*, and weevils, including the very remarkable *Methyphora postica*, Pasc., are to be obtained.

The sandy beaches at Botany Bay, Bondi and Manly yield their quota of interesting beetles, the Heteromorous genera *Sobas*, *Lagrioida*, *Saragus*, *Mecynotarsus* (*albellus*, Pasc., almost entirely white in colour), and numerous pretty little species of *Anthicus*, being found at the roots of maritime plants, while *Scymena*, *Trachyscelis*, *Bledius*, *Cafius*, *Aceritus*, and the singular weevil *Aphela algarum*, Pasc., occur on the sand under seaweed at and below high-water mark. The large red-headed *Creophilus erythrocephalus*, Fab., and the brilliant green *Saprinus australiæ*, Blackb., abound equally on carrion inland and under dead fish on the beach, and in the latter situation the very singular pallid *Nitidula*-like Staphylinid *Sartallus signatus*, Sharp (Ent. Mo. Mag., vol. vii, p. 217), sometimes occurs in abundance. Early in the summer *Cicindela ypsilon*, Dej., makes its appearance on the shore in large numbers, its pale ochreous-white colour matching that of the sand with such marvellous accuracy that the beetle is often most easily detected by its shadow, and even when seen its wariness, and the promptitude with which it takes to wing when approached, render it very difficult to capture. The only other *Cicindela* observed by me near Sydney, *C. mastersi*, Cast., a small dark bronzy species, was met with on one occasion only (March 24th, 1900) at Riverston near Parramatta, on wet mud by the roadside, where it was as well protected as its seaside congener by its activity and assimilation to its surroundings.

Coprophagous beetles are on the whole not very much in evidence, though some nice forms of *Onthophagus* and allied genera are to be found in their usual habitat, and our *Aphodius granarius*, L., and *lividus*, Ol., are the commonest species of their genus. Two or three species of *Trox* may be met with under dry carrion, &c., with occasionally the large and handsome brown *Silpha*-like *Ptomaphila lachrymosa*, Schreib. On one occasion I made a great haul of *Trox australasiæ*, Er., under an old felt hat lying in bare hot sand. The water-net yields a good variety of *Hydradephaga* and *Philhydrida*, mostly of small forms, and of course including the very widely spread *Rhantus pulverosus*, Steph., but the fine large *Homæodytes* (*Cybister*) *scutellaris*, Germ., I have only taken flying to the electric arc lamps near the Botanic Gardens. Several *Gyrinidæ*, some, as *Macrogyrus oblongus*, Bdv., of considerable size, are abundant on the surface of running as well as standing water.

(To be continued).

THE SPECIES OF *TETROPIUM* THAT HAVE BEEN FOUND IN BRITAIN.

BY D. SHARP, M.A., F.R.S.

TETROPIUM CRAWSHAYI, *sp. n.*

Fere angustum, subdepressum, nigrum, antennis tibiis tarsisque piceis; vertice in medio laud, vel vir, depresso; prothorace vir transverso, ubique crebre, fere æqualiter punctato (i.e., areis lævigatis fere nullis). margine basali obsolete elevata. Long. 12-16 mm.

? *T. gabrieli*, var., Weise, Deutsche ent. Zeitschr., 1905, p. 136.
T. fuscum, Sharp and others, Ent. Mo. Mag., 1903.

In addition to the obvious, though slight, characters of form, colour, and punctuation, this species is distinguished from *T. luridum* by the more imperfect articulation of the sternal pieces between the middle coxæ, and by the ♂ genitalia. The thorax is more uniformly punctate than in any other of the species, there is no definite longitudinal depression on the front of the head, and the basal margin of the thorax is more obsolete than in either of the other species that are generally known in Europe. There is a slight, but only a slight, difference in the breast of the two sexes, due to the fact that the mesosternum is a little less convex or protuberant beneath in the female. Hence the junction between the meso- and metasternal processes is not so visible in the male as it is in the female; but in each of the sexes the junction is but imperfectly effected, more imperfectly in the male than in the female.

This species is named in honour of the Rev. G. A. Crawshay, who has reared a very fine series of it from larch (*Larix europæa*) at Leighton Buzzard, and who has most liberally presented specimens to the British Museum, and to various individuals in Britain and on the Continent. It is the species recorded by myself as *T. fuscum*, and has been taken in various localities in this country lying between Norfolk (Atmore) and the New Forest (Sharp, Crawshay, and F. G. Smith). The extensive series obtained shows that it is but little variable. It appears to be quite confined to the larch.

In endeavouring to distinguish the species of *Tetropium*, there are two characters that should be first examined, viz., (1) the basal margin of the prothorax, and (2) the concavity or the convexity of the front of the head. The species of the mountains of Central Europe, *T. luridum*, L., has (1), the basal margin of the thorax

turned strongly upwards in consequence of a deep depression extending all across the pronotum, and (2) the front of the head concave and canaliculate.

T. crawshayi belongs to a group of three species, distinguished by the obsolete basal margin of the pronotum. The three species are: *T. gracilicorne*, Reitter, *T. gabrieli*, Weise, and *T. crawshayi*, *sp. n.* *T. gracilicorne* is an inhabitant of Eastern Siberia; it is extremely like *T. crawshayi*, but the thorax has shorter and less densely punctured, and the middle part of the head is longitudinally concave. I am indebted to Herr Reitter for communicating seven individuals of his species; they are all I have seen, the insect being represented neither in my own collection nor in that of the British Museum. The specimens sent by Herr Reitter are unfortunately all females, but I have no doubt of the distinctness of these two forms.

T. crawshayi is really nearer to *T. gabrieli*, though the two look very different on account of the bright red legs of the second of these species. This being a variable character in *T. luridum* I should have supposed *T. crawshayi* and *gabrieli* to be mere forms of one species, were it not that the splendid series of *crawshayi* obtained by Mr. Crawshay shows that the colour of the legs is quite constant. In addition to this the punctuation of the thorax is rather coarser in *T. gabrieli*, and the thorax is a little longer and narrower. The male genitalia offer both in the parameres and ædeagus some distinctive characters in the species of *Tetropium*, but in consequence of insufficient material I am not able to fully appreciate these differences in the case of *T. gabrieli*, and I must leave this point for subsequent investigation.

TETROPIUM PARCUM, *sp. n.*

♂ *Sat angustum, haud depressum, prothorace parum transverso, sat nitido, subtiliter punctato, areis levigatis parum magnis, margine basali parum elevata.*

Long. 14-15 mm.

The male, compared with the same sex of *T. crawshayi*, is a little more robust and convex, with thicker legs and antennæ, has the vertex canaliculate and the thorax less densely and less uniformly punctate and rather shorter in proportion to its width, and the colour is different.

The female of *T. parcum* differs from the male by its more slender legs and antennæ, and by a more punctate thorax, with only very small and vague smooth areas on the disc. The female differs from the

female of *T. luridum* by the rather shorter thorax, and the longitudinally depressed vertex, as well as by the form of the base of the pronotum, and by other characters.

The important character by which this species differs from *T. luridum*, is the imperfect condition of the centre of the breast. This exists in both sexes, although (as is usually the case in this genus) there is a sexual difference in the structure at this point, due to the female having the meso-and prosterna more flattened than they are in the male. In the male the front of the mesosternum slopes upwards and no junction with the mesosternal process can be seen. In the female the mesosternal process is broader than in the male, and there is a considerable gap between its apex and the most prominent part of the metasternum.

T. parcum is allied to both *T. luridum* and *T. fuscum*. It is well distinguished from the former by the sternal structure, by the much less developed basal margin of the thorax and by the more dense white pubescence on the base of the elytra. It is larger than *T. fuscum*, and has not the peculiar granular sculpture on the thorax that distinguishes *T. fuscum* from all the other species.

T. parcum is at present known only by two specimens in the Crotch Collection of British *Coleoptera* in our Museum at Cambridge. They are labelled "near Manchester, 1865." Inquiry at Manchester has failed to elicit any further information as to their history.

In addition to *T. crawshayi* and *T. parcum*, two other species, if not more, of *Tetropium* have been found in Britain. One of these I believe to be *T. gabricli*, recently described by Weise from three or four specimens coming from different localities in Central Europe. It has been captured by Messrs. Bouskell and Donisthorpe, and recorded as *T. castaneum* (= *luridum*).

The other forms were found at Hartlepool in connection with imported timber, by Mr. Gardner, and four specimens have been sent to me by Mr. R. S. Bagnall. My information as to the forms found beyond Central Europe is at present not sufficient to warrant my dealing with them, and they can only be labelled *T. luridum*, var.? They appear to be nearer to specimens from East Siberia than to those that occur in Central Europe.

A singular confusion has prevailed as to the genus *Tetropium*, of which only three species from the Palearctic, and two others from the Nearctic regions have been recognised until the present year. It is therefore worth recording that Mr. Champion has found *T. craw-*

shayi at the Simplon in Switzerland, and at Macugnaga in Piedmont. He has also met with *T. gabrieli* in the Mendel Pass, Tyrol, and at Guarda in the Lower Engadine and at the Simplon in Switzerland. *T. fuscum* has occurred recently in plenty, near Paris, in *Abies excelsa*, and Mr. Champion has met with it in the Lower Engadine.

I have the pleasure of thanking Herr E. Reitter, Mr. Crawshaw, Mr. Champion, Mr. Bouskell, Mr. Donisthorpe, Mr. Bagnall, Mr. Saunders, and M. Paul Estiot for their assistance in communicating specimens.

University Museum of Zoology,
Cambridge :

November 4th, 1905.

THREE SPECIES OF *COLEOPTERA* NEW TO BRITAIN.

BY NORMAN H. JOY, M.R.C.S., F.E.S.

DACNE FOWLERI, *sp. n.*

Of the same size and shape as *D. humeralis*, F., shining black, with head, thorax, antennæ, and legs dark ferruginous; the thorax suffused with black, the elytra with a spot at the shoulder reddish-yellow; thorax and elytra punctured as in *D. humeralis*, the thorax with the lateral margins much broader, making the anterior angles more prominent; legs distinctly longer and more robust than in *D. humeralis* and *D. rufifrons*. Length, 3 mm.

In colour this species is somewhat intermediate between *D. humeralis* and *D. rufifrons*, but the legs, and especially the antennæ, are darker than in either. In the structure of the thorax it more nearly resembles *D. humeralis*, but the reflexed margins are more than twice as broad as those of the best developed specimen of the latter I can find. But besides these colour and structural differences the present species differs considerably in habits from its British allies. The latter are decidedly sluggish insects. They are generally found in fungus or under bark, and when shaken out lie "possum" for a short time and then walk slowly away. *D. fowleri* is much more active. I found four specimens of it at Bradfield, Berks, in June this year in a hole in a large oak log, where a rotten branch had been broken off. I disturbed them out of the dry wood, and when they fell down they rapidly ran off, so that I was only able to capture two of them. I did not for a moment suspect that my captures belonged to this genus, their habits and general appearance in life being so different from those of *D. humeralis* and *D. rufifrons*.

The only other allied Continental form seems to be *D. humeralis*, var. *jekeli*, Reitt., to which my insect cannot be referred.

LÆMOPHLEUS MONILIS, F.

[Er. Nat. Ins. Deutschl., III, 316, = *denticulatus*, Preysl.]

A large and broad species, compared with other members of the genus.

♂. Depressed, shining, head and thorax reddish, elytra pitchy, each with a reddish-yellow spot on the disc, antennæ and legs reddish-yellow; head large, broader than thorax, finely punctured; mandibles bifid, prominent; antennæ long, with the joints longer than broad; thorax very transverse, and strongly contracted behind, as broad as elytra, finely punctured, with a deep stria on each side parallel with margin, sides slightly denticulate; elytra minutely punctured, with three finely punctured striæ and a slender raised line near margins; legs rather short.

♀. Similar to the ♂, but with the reddish-yellow spots on the elytra considerably larger; the head narrower than thorax; the antennæ shorter, with the joints as broad as long; the thorax not nearly so strongly contracted behind and considerably narrower than the elytra.

Length, 2·5—5 mm.

Mr. Chitty and I took ten specimens of this most striking species near Streatley, Berks, on October 8th last, and I have subsequently taken two more examples at the same tree. They occurred under beech bark, in company with *Litargus bifasciatus*, F. (upon which it was probably feeding), *Diplocælus fagi*, Chev., *Enicmus brevicornis*, Mann., &c. It appears to be not uncommon on the Continent under beech and plane bark.

MELANOPHTHALMA DISTINGUENDA, Comolli.

[Coleopt. Nov. 38, = *angulata*, Woll., Cat. Canar. Col., 148].

Rust-red with black-brown* or black elytra, or entirely rust-red or reddish-yellow; thorax considerably narrower than elytra, more abruptly narrowed in front than behind, with sides somewhat angulated in middle, strongly punctured, transverse depression not strong; elytra oval, with strongly punctured striæ and rows of rather long hairs. The ♂ has the last joint of the front tarsi, on the inner side near the middle, armed with a distinct spiniform tooth. Length, 1·5—2 mm.

This species is most nearly related to *M. transversalis*, but differs in being shorter and in having the hairs on the elytra longer; the tooth on the anterior tarsi of the male is also characteristic.

The hairs on the elytra are longer than in any of the other British representatives of the genus.

I took four specimens of this insect on Lundy Island in August last, and I have little doubt it will prove to be common there.

Bradfield, Reading, Berks :

November 2nd, 1905.

* My specimens are coloured thus.

TORTRIX PRONUBANA, Hb.: A SPECIES NEW TO THE BRITISH LIST, IN SUSSEX.

BY W. H. B. FLETCHER, M.A., F.E.S.

About 10 a.m. on Monday, October 23rd, one of the frosty but bright sunny mornings which have distinguished the latter part of the present month, I flushed in my garden a small moth, the bright colouring of which suggested as it flew that it might be *Pyrausta purpuralis*. Wondering what that species could be doing on the wing at such a time of the year, I followed it up. After two short flights it pitched on a twig of *Coronilla glauca*, from which I boxed it. On examination it has proved to be a specimen of *Tortrix pronubana* Hb., a male in fine condition, evidently fresh from the pupa.

I have to thank my friend Mr. E. R. Banks for his kind assistance in identifying it.

Aldwick Manor, Bognor:
October 27th, 1905.

[A further notice and description of this very interesting addition to our Lepidopterous fauna by Mr. Eustace R. Banks will appear in the next number.—Eds.].

A DIPTEROUS ENEMY OF ENGLISH HOTHOUSE GRAPES.

BY ERNEST E. AUSTEN.

I have recently had submitted to me for identification by Mr. G. S. Saunders, of Wandsworth Common, some small *Diptera*, accompanied by the statement that the larvæ from which the flies were bred were "injuring a crop of grapes grown under cover at Thongsbridge, near Huddersfield." The sender added that "Lady Downe's Seedling" was the only variety attacked, and that there were several larvæ in each grape. Comparison with specimens already in the Museum collection soon showed that the insects belong to the species well known on the Continent and in the United States under the name *Drosophila ampelophila*, Lw., which was originally described from Cuba. Further study, however, led to the interesting discovery that (at least so far as can be judged from the descriptions of Meigen, Schiner, and Loew) *D. ampelophila*, Lw., is undoubtedly identical with *D. melanogaster*, Mg., a species recognised as British in the first edition of Mr. Verrall's "List of British Diptera" (1888). *This synonymy is new.*

In length *Drosophila melanogaster* measures from $1\frac{1}{2}$ to $2\frac{1}{3}$ mm.; the colour of the head, thorax, and base of the abdomen is ochraceous;

the basal half of the abdomen is banded with brown, while the apex is shining black or blackish-brown. The males are readily recognisable owing to the presence of a peculiar structure at the tip of the first joint of the front tarsus, on the inner side. Under an ordinary platyscopic lens the structure in question looks like a speck of black dirt, but when examined under a compound microscope it is seen to consist of a *comb* composed of some twelve or thirteen stout black teeth, and set obliquely to the long axis of the tarsal joint. This peculiar organ is figured by Howard in "The Principal Household Insects of the United States" (U. S. Dept. of Agriculture. Div. of Entomology. Bulletin No. 4. New Series, Revised Edition: 1902), p. 110, fig. 51, where also the adult insect and its transformations are shown. The full-grown larva is an active yellowish-white maggot, about 4 mm. long, with the usual conspicuous black mouth-hooks, and, at the hinder end of the body, a pair of prominent posterior spiracles, orange in colour, and situated upon a backwardly directed protuberance from the upper edge of the terminal segment. The puparium is yellowish, about 3 mm. in length, with the larval posterior stigmata prominent at the hinder end, and at the anterior extremity, on the upper side, a flattened depression, truncated in front, with the branched larval cephalic spiracles projecting from its angles.

Like other species of *Drosophila*, *D. melanogaster* breeds in decaying or fermenting fruit and other vegetable matter; it is also attracted by, and breeds in, fermenting liquids, which perhaps accounts for its having been observed flying in swarms round a brewery chimney in Essex, in September, 1892. Similarly, Dr. Williston (Canad. Ent., vol. xiv, 1882, p. 138) mentions that he has seen "*Drosophila ampelophila*, Lw.," in "clouds" about heaps of cider refuse: the same writer remarks that he has never known "perfectly sound fruit" to be attacked by the insects, "but the slightest indication of fermentation attracts them in great numbers." Mr. G. J. Bowles, of Montreal, calls this species "The Pickled Fruit Fly," and gives (*ibid.*, pp. 102-103) an account of its breeding in raspberry vinegar. Under the name of "The Vine-Loving Pomace-Fly," J. H. Comstock (Report on Insects for the Year 1881, pp. 6-9, Pl. xv:—extract from the Report of the U. S. Department of Agriculture for the year 1881) describes and figures all stages of the insect, and gives *inter alia* an especially good figure of the comb on the front tarsi of the male. Dr. Melichar, of Vienna, records (Wien. Ent. Z., xx, Jahrg., 1901, pp. 7-8) the breeding of "*Drosophila ampelophila*, Löw," in countless myriads in an open barrel half-full of

rotten and fermenting fruit; and Comstock, who bred the species in the United States from apples attacked by the Apple Maggot, *Rhagoletis pomonella*, Walsh (Fam. *Trypetidæ*), states (*loc. cit.*, p. 7) that "under ordinary circumstances, the Pomace-Flies feed only on decaying fruit in an orchard. . . ." According to Aldrich (Catalogue of North American *Diptera*, 1905, pp. 641-642 *), Cockerell gives (Bulletin 32, Arizona Experiment Station, pp. 290-294) an account of the larvæ "injuring oranges—not, however, until they had been attacked by rot;" while Lintner (1st N.Y. Report, pp. 216-221) records the occurrence of the larvæ in pickles and jam. The species was reared by Howard (Proc. Wash. Acad. Sci., ii, 1900, p. 589) from human excrement at Washington, U.S.A. So far as I am aware, the insect has not before been observed to be a pest in English vineries, but two cases of attack on grapes in the United States have been published. Mr. W. L. Devereau, of Clyde, N.Y., quoted by Comstock (*loc. cit.*), writes: "The larvæ of this fly completely eat out the inside of grapes which, while hanging on the vines, have first been picked open by birds. The decaying juices running out on the other berries of the cluster spread decay, and thus give more foothold for the larvæ. Indeed, the larvæ bore from one grape to another, while the imagos are constantly, by eggs, putting in new colonies until the cluster is nearly or quite destroyed, nothing remaining but the empty grape-skins." The second instance is that recorded by Forbes (Trans. Illinois State Horticultural Society, 1884), who, as reported by Howard (*loc. cit.*), refers to "the damage done by *D. ampelophila* to the grape crop at Moline, Ill. He states that they attack most frequently grapes which have been mutilated by birds or damaged by rot, but once having commenced on a cluster are likely to pass from one berry to another, the flies meantime constantly laying eggs." Within the last few months the British Museum has received specimens of this species from West Australia, and since Loew, at the end of his description of *D. ampelophila* (Dipt. Amer., septentr. indigena, Centuria secunda, pp. 101-102), states that, besides being found in Cuba and Central Europe, and being very abundant in Southern Europe, it also occurs in South Africa, it is evident that its area of distribution is extremely wide. There can be little doubt that the fly has been carried about the world in cargoes of unsound fruit.

British Museum (Natural History),
Cromwell Road, London, S.W. :
September 28th, 1905.

* I am indebted to this valuable Catalogue for all the references here given.

ON TWO SPECIES OF *DOLICHOPODIDÆ* TAKEN IN SCOTLAND.

BY G. H. VERRALL, F.E.S.

Since the conclusion of my paper on the British *Dolichopodidæ*, two species have been taken by Col. Yerbury in Scotland which require notice.

Dolichopus argyrotarsis Wahlb.: Col. Yerbury caught one male of this species at Nethy Bridge on June 19th. It is very closely allied to *D. pennatus* and *D. signatus*, but is readily distinguished by having the last three joints of the middle tarsi silvered in the male.

Porphyrops gravipes Wlk.: when searching for more specimens of *P. patula*, Col. Yerbury, besides taking that in considerable numbers also caught a lot of a species which I have little doubt is the true *P. gravipes* Wlk. (= *longilamellatus* Kow.). It differs from *P. patula* by its slightly smaller size, simple arista, shorter genital lamellæ (though still very long), and quite black hind femora, which latter character seems to be constant. He took *P. gravipes* at Nairn and Nethy Bridge from May 30th to June 16th. *P. patula* occurred at the same localities and also at Brodie. *P. rivalis* was abundant at Nairn, Brodie, and Nethy Bridge from June 3rd to 17th.

Newmarket: November, 1905.

Re-occurrence of Quedius nigrocæruleus, Rey, in Suffolk.—On September 1st last I again captured this species, four ♀ specimens turning up in a woody fungus on an elm in a hedgerow near Oulton Broad. The fungus was full of the larvæ of *Orchesia micans*, Pz., upon which the *Quedius* was probably preying. I should very likely have obtained more specimens if I had not knocked the fungus off the tree trunk so as to scatter it in the hedge, the piece from which I obtained the beetles having formed but a small portion of the whole. The four specimens previously recorded for this country were found in bees' nests, or in or about rabbit burrows, and Rey considers it a cave and cellar species, so it appears to have very diverse habitats.—E. C. BEDWELL, "Elmlea," Clevedon Road, Norbiton: October 18th, 1905.

Megacronus formosus, Gr.—While on the subject of Bold's insects, it is as well to mention that no specimen of *Megacronus formosus* is to be found in the Newcastle-on-Tyne collection. The name appears with a "?" in Bold's Catalogue, and this note

of interrogation was reproduced in all the British catalogues of the time, and also in that of Fowler and Matthews (1883). As mentioned by Canon Fowler (Brit. Col. II, 209) the species does not occur in France or the Netherlands. It is thus a very unlikely insect to occur in Britain.—E. A. NEWBERY, 12, Churchill Road, Dartmouth Park, N.W.: *November 9th*, 1905.

Oxytelus fulvipes, Er., in *Sherwood Forest*.—In May of the present year, I took two specimens of this local species; they were found in very damp rotten sawdust beneath a small yellow fungus. This is, I believe, a species hitherto unrecorded from Sherwood. I am indebted to my friend Mr. E. A. Newbery for its verification.—J. KIDSON TAYLOR, 35, South Avenue, Buxton: *October 31st*, 1905.

Captures of Coleoptera.—During the past season I have had scarcely any opportunities for collecting; but I find that the following captures, made for the most part in previous years, have not hitherto been recorded: *Philonthus fucicola*, *Cleonus sulcirostris*, and *Chrysomela gættingensis*, Lyme Regis—the latter strolling casually about the roads; *Platystethus nitens*, Dulwich; *Anara curta* and *Saprinus metallicus*, Deal; *Malachius ruficollis*, Erith; *Cistela atra*, Tooting Common; *Oncomera femorata*, in some numbers, clinging to the lower surface of big stones in a small hollow near Niton, Isle of Wight, while one specimen came to light; *Nacerdes melanura*, on the platforms of Clapham Junction and Wandsworth Common Stations, having evidently travelled up from the coast by train; *Longitarsus agilis*, a single specimen at Baldock, Herts, by sweeping. *Elater sanguinolentus* seems to have been unusually common in the New Forest during the past summer, as a Lepidopterist friend brought back quite a large number which he had beaten out of furze bushes. *Lyctus brunneus* still continues to breed in the drawing-room table of a house near here in which it was first taken in 1896 (cf. Ent. Mo. Mag., xxxii, 259); *Cis bilamellatus* has been multiplying freely in my own study from specimens captured at West Wickham fourteen months ago.—THEODORE WOOD, The Vicarage, Lyford Road, Wandsworth Common, S.W.: *October 11th*, 1905.

Bledius femoralis, Gyll., near *Wellington College*.—On September 19th, in company with Dr. Joy, I went to look for *Bledius femoralis* near Wellington College, and we found about thirty specimens; it seems to be well established along one side of a shallow lake, which appears, however, to be of comparatively modern construction. It is probable, however, that the ground has been more or less marshy from time immemorial; the casts of the *Bledius* are sometimes very difficult to find, but when found, are rarely empty, unless occupied by the larva or imago of a *Dyschirius* which I have before referred to, but which I have not yet satisfactorily identified. This larva is about 6 mm. in length and is very active; it is parallel-sided, with the head large and subquadrate, slightly rounded at the sides, smooth, with the anterior furrow not strongly marked; the pronotum is considerably larger than the mesonotum; the legs and antennæ are short, the tibiæ and tarsi of the former being of equal length; the anal process is very short and small, and the cerci long; the colour is pitchy with the legs partly testaceous.

It differs considerably from that of *Dyschirius thoracicus*, in which the pronotum is much longer in proportion, and the anal process is large and longer than the very short cerci. Superficially it much more closely resembles (in miniature) the larva of *Scarites lævigatus*, F., which also has the short anal process and long cerci. I did not, unfortunately, take a larva of the *Bledius*, but I hope to describe it at some future time. The larvæ in some of these genera differ very considerably, and it would be a very good thing if more attention were paid to them; that of *Bledius talpa*, Gyll., for instance, which is allied to *B. subterraneus*, differs very much from that of *B. unicornis*, the former being stout and comparatively parallel-sided, and the latter much more slender and much contracted in the thoracic region. In time to come many of these characters will probably be used for generic purposes; there is no reason why they should not be as much taken into account as in the *Lepidoptera*.—W. W. FOWLER, Earley Vicarage, Reading: November 4th, 1905.

The British variation of Nebria gyllenhali, Sch.—I have recently been able to examine a considerable number of specimens of this insect from various localities in England, Wales, Scotland, and Ireland, and find the amount of variation in the species, whether as regards proportion of individuals, or divergence of direction, apparently unusually large. These aberrant forms have been differently named by various authors, either as species or varieties, resulting in great uncertainty and confusion in their synonymy, and it is impossible now to refer each degree of variation to its appropriate specific or varietal name. Mr. Donisthorpe, however, has already pointed out (*Entomologist's Record*, xvii, 103) that we possess the variety *rufescens*, Ström = *N. arctica*, Dej. (= *N. marshallana*, Steph.?) This form, at any rate, that in which the legs are rufescent as well as the elytra, seems to be generally represented by what are probably merely immature examples of the type and at best is what might be called a persistent immaturity of it, that is to say, its difference from the type seems to consist only in an arrested pigmentation and represents a stage included in the normal ontogeny. Many similar instances will occur to the student of *Coleoptera*—it will suffice to cite the var. *brunnea*, Herbst, of *Silpha atrata*, L. Such cases are perhaps comparable with the “undeveloped forms” of the *Hemiptera*, and hardly seem to merit the name of variety which is more strictly a deviation from the normal, not an antecedent, stage of it. Another form (perhaps *N. rufescens*, Ström, with black legs), which occurs in Scotland and in Wales, is of the shape and size of the type, with the thorax and legs black and the elytra distinctly rufescent, especially towards the apex. This is known on the Continent as var. *besseri*, Fisch., and is probably the var. c. of *N. hyperborea*, Gyll. This is undoubtedly perfectly mature, and in some localities quite as common as the type. A third form is the “variety with red legs” alluded to by Canon Fowler (*Brit. Col.* I, 16) as common on Snowdon. There it is certainly the predominant form. It differs from the type in its rather smaller size and distinctly narrower shape, and so far as my experience extends, in the slightly narrower and more convex elytral interstices. I have only seen it from the Snowdonian mountains. Dawson refers to this form as a variety “common on Snowdon, not noticed, with body black and legs entirely red.” That this may be the *N. nivalis*

of Paykull is perhaps not impossible. Heer says of it (Faun. Col. Helv. 36) "Præcedenti (*N. gyllenahali*) minus affinis, elytrorum striis paulo profundioribus, interstitiis convexioribus, femoribus rufis dignoscitur." Finally, it must be admitted that connecting links exist between all these forms and the type, and the case perhaps does but furnish one more example of the futility of attempting to nominally differentiate between the varied forms of an inconstant species such as this.—W. E. SHARP, South Norwood, Surrey : October, 1905.

Obituary.

George Bowdler Buckton, F.R.S., died on September 25th, in his 88th year, having been born in London on May 24th, 1817. He was privately educated, having been incapacitated by an accident in early life from all active pursuits. His friendship with Thomas Bell, F.R.S., first turned his attention to Natural History, but his earliest serious studies were devoted to Chemistry and Physics, and in 1867 he carried out some important original work, in recognition of which he was elected a Fellow of the Royal Society. In 1865 he married the widow of Professor Odling, Professor of Chemistry at Oxford, and bought the estate of Weycombe at Haslemere, and built the house which he occupied to the day of his death. At Haslemere he soon began to get together material for his monograph in four volumes of the "British Aphides," published by the Ray Society, 1876-1883. In 1890 his illustrated "Monograph of the British Cicadæ or Tettigidæ" was published by Macmillan, and was followed in 1895 by "The Natural History of *Eristalis tenax*," and by various papers. His last work was a "Monograph of the Membracidæ." Most of the plates in these works were drawn, and, in some cases, lithographed, by himself. The original drawings of the *Membracidæ* have been presented to the Hope Museum at Oxford.

Mr. Buckton was a Fellow of the Linnean Society (1845), the Chemical Society (1852), the Royal Society (1867), and the Entomological Society (1883), and was also a Member of the Entomological Society of France, a Corresponding Member of the Royal Academy of Sciences in Philadelphia, &c.

Apart from his scientific pursuits, he was a good musician and artist, and a man whose mind never lay in one groove; his great energy and will-power were shown by the fact that, although quite crippled from early years, he travelled alone in Italy, France, and elsewhere, and managed to frequently attend the council and general meetings of the various societies to which he belonged. It is not for us to speak of what he was to his family at home, but by his kindly courtesy and self-effacing hospitality he endeared himself to all with whom he was brought into contact.

Mr. Buckton will be much missed in Haslemere; he was a strong supporter of the Parish Church and Schools, and also took a great interest in all movements for the good of the parish generally, without regard to denomination. The funeral took place in Haslemere Churchyard on Saturday, September 30th, the remains having been previously cremated, and the large attendance showed in how great esteem the deceased was held by his friends and fellow townsmen.—W. W. F.

Society.

ENTOMOLOGICAL SOCIETY OF LONDON: *Wednesday, October 18th, 1905.*—
Dr. T. A. CHAPMAN, M.D., F.Z.S., Vice-President, in the Chair.

Mr. Charles William Braeken, B.A. (Lond.), of 18, Whiteford Road, Mannamead, Plymouth, and Mr. William Hubert St. Quentin, of Seampton Hall, Rillington, York, were elected Fellows of the Society.

Mr. H. Rowland-Brown exhibited series of *Erebias* taken this year in the Pyrenees, including *Erebia lefebrei*, with the varieties *pyrenaica*, Obth., from Mount Canigou, E. Pyrenees, and var. *intermedia*, Obth., from Gavarnie. He also showed for comparison *E. glacialis* var. *nicholli* from Campiglio, which at one time was supposed to be identical with *lefebrei*, then considered to be the Pyrenean form of *E. melas*. With them were also shown specimens of *E. gorgone* and *E. gorge* from the Lac de Grande, Cautarets, and from Gavarnie, with short series of *Lycena orbitulus* from the Central Alps, *L. orbitulus* var. *oberthuri*, Stgr., *L. pyrenaica* and *L. pheretes* from the Brenner and Cortina districts. It was remarkable that as between the species enumerated there seemed to be a greater superficial affinity between *pyrenaica* and *pheretes* (not reported from the Pyrenees) than between *pyrenaica* and *orbitulus*. Mr. E. C. Bedwell, eight specimens of *Apion lveigatum*, Kirby, one of the rarest indigenous *Apions*, found on August 31st, sheltering under plants of *Echium vulgare* in the Lowestoft district. Mr. R. Shelford, a Lygaeid bug, the fore limbs of which were well adapted to fossorial habits and comparable with those of the mole cricket; a Brentid beetle which had a deep channel along the dorsal part of the prothorax, and occupied by *Acari*; and an Anthribid beetle with a crescentic sulcus also for the reception of *Acari* on the prothorax. All the specimens were from British North Borneo. Mr. C. J. Gahan, on behalf of Mr. C. O. Waterhouse, a living example of *Phaneroptera quadripunctata*, which species had been found in some numbers in a vinery near Chester. Mr. W. J. Kaye, a long variable series of *Heliconius numata* from the Potaro River, British Guiana, clearly proving that these very variable forms were only aberrations, and were not sub-species, at least in this locality, as had been described by Riffarth, Weymer, and others. He also showed a pair of *Heliconius silvana* with two rare aberrations, in which the black area of the hind-wing was divided; and examples of *Heliconius vetustus*, it being remarkable that although similar to *numata* it was nevertheless a distinct species. Mr. A. H. Jones, a collection of *Lepidoptera* made by him in Majorea during the first half of last June, and remarked upon the almost total absence of Lepidopterous life in the island. Only thirteen species of butterflies were observed, all of the commonest kinds and without any indication of variation, with about six species of moths (all occurring in Britain), including *Agrotis sancia*, *Acidalia ochrata*, and *A. degeneraria*, the latter, interesting in point of colour, being much redder; also *Melanargia lachesis*, var. *canigulensis* from Vernet-les-Bains, showing on the under-side in the males a strong resemblance to *M. galathea*, also *Melitra aurinia* var. *iberica*, Obth., from Montserrat, near Barcelona, and a melanic specimen of *Erebia stygne*, taken by Mr. R. S. Standen last June at St. Martin de Canigou, Vernet-les-Bains. Mr. Frank P. Dodd communicated a paper "On a parasitic Lepidopteron from Queensland, Australia." Commander J. J. Walker read a paper by Mr. E. G. R.

Meade-Waldo, "On a Collection of Butterflies and Moths made in Marocco, 1901-02." The species enumerated included a *Ctenonympha* and a *Satyrus* new to science.

Wednesday, November 1st, 1905.—The President in the Chair.

Mr. J. W. H. Harrison, B.Sc. (Lond.) of The Avenue, Birtley, was elected a Fellow of the Society.

The Rev. F. D. Morice exhibited (1) *Panurgus moricei*, Friese, a species of bee new to science, taken by him near Gibraltar, of which it was remarkable that whereas species of this genus are entirely black, in this insect the ♂ face was entirely and that of the ♀ partly bright yellow, the legs partly yellow, and the abdomen spotted down each side very much as in *Anthidium*; and (2) the unique type specimen of *Heriades fasciatus*, Friese, a ♂ of the *Chelostoma* group, taken by him at Jericho in 1889, in which again, while all its congeners are practically unicolorous, the abdomen is brightly banded, not unlike that of a wasp. A discussion followed as to the reason of the peculiar coloration in the species under review, the exhibitor pointing out that the colour mimicry in this insect could not be due to parasitism, both *Panurgus* and *Heriades* being industrious genera. Professor E. B. Poulton, F.R.S., expressed his opinion that the species shown were mimics, though industrious. He also remarked that in the case of some Algerian *Aculeates* the bright pubescent colouring of the head might assist as a protection to the insect when looking out of its hole in the sunshine. Mr. C. O. Waterhouse mentioned that with some *Buprestidae* the front of the head in the ♂ was bright, but unicolorous in the ♀; a peculiarity also observed by Mr. M. Jacoby in the genus *Cryptocephalus*. Mr. W. J. Lucas showed a ♂ specimen of the earwig *Forficula auricularia* taken at Warwick in September last, with a drawing of the cerci (forceps), which were very abnormal, the broader basal part of the two appearing to be more or less fused together, while the forceps themselves were jointed to the basal part. The case, he said, was interesting because in cockroaches, &c., the cerci are regularly jointed. Mr. G. C. Champion, various interesting insects from Guatemala recently received from Señor Rodriguez, including *Heterosternus rodriguezi*, Cand., *Pantolinus klugi*, Burm., *Plusiotis adelaida*, Hope, and a species of *Orthoptera* greatly resembling a dead withered leaf, possibly a new species of *Mimetica*. Mr. Norman H. Joy, two species of *Coleoptera* new to the British Islands: *Læmophloeus monilis*, F., taken in the neighbourhood of Streatley, Berks, and *Dacne fowleri*, n. sp., from Bradfield, with specimens of *D. humeralis* and *D. rufifrons* for comparison. Mr. H. St. J. Donisthorpe, a specimen of *Agathidium (badium)*, Fr., discovered last year in Cumberland, and since taken by him in Durham, and examples of *Prionocyphon serricornis*, the larva of which he had found under water in the boles of trees in the New Forest. Mr. F. A. Dixey, preparations of the scents of some African butterflies collected by him, with the assistance of Dr. G. B. Longstaff, during the recent visit of the British Association, together with specimens of the species investigated. A discussion on the presence and use of scents in various Orders of insects followed, in which the President, Professor Poulton, Col. C. T. Bingham, Dr. Longstaff, and other Fellows joined. Mr. P. I. Lathy, F.Z.S., communicated "A Contribution towards the knowledge of African Rhopalocera." Col. C. T. Bingham contributed a paper entitled "A New Species of the Hymenopterous genus *Megalyra*, Westwood, by J. Chester Bradley, Ithaca, N.Y., U.S.A."—H. ROWLAND BROWN, *Hon. Secretary*.

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ERRATA.

Page	12,	col. 2,	line 4 from top,	for “Timadra,”	read “Tinandra.”
„	12,	„ 3,	„ 7	„ bottom,	for “contammana,” read “contaminana.”
„	19,	line 17 from top,	for “ezample,”	read “example.”	
„	44,	„ 19	„ „	„ “ <i>spilodactyla</i> ,”	read “ <i>spilodactylus</i> .”
„	49,	„ 2	„ bottom,	for “spain,”	read “Spain.”
„	75,	„ 19	„ top,	„ “ <i>Amphydasis</i> ,”	read “ <i>Amphidasys</i> .”
„	117,	„ 25	„ „	„ “ <i>literata</i> ,”	read “ <i>siterata</i> .”
„	142,	„ 18	„ „	„ “ <i>pyrrina</i> ,”	read “ <i>pyrina</i> .”
„	181,	„ 23	„ „	„ “ <i>Hypophlæus</i> ,”	read “ <i>Hypophlæus</i> .”
„	182,	„ 17	„ „	„ “ <i>Enconnus</i> ,”	read “ <i>Euconnus</i> .”
„	204,	„ 23	„ „	„ “ <i>Erigine</i> ,”	read “ <i>Erigone</i> .”
„	210,	„ 4	„ „	„ “ <i>maculicollis</i> ,”	read “ <i>maculicornis</i> .”
„	210,	„ 11	„ bottom,	„ “ <i>A. æthiops</i> ,”	read “ <i>E. æthiops</i> .”
„	223,	„ 12	„ top	„ “puctuation,”	read “punctuation.”
„	232,	„ 1,	for “screechnig,”	read “screeching.”	
„	232,	„ 22 from top,	for “Coreid,”	read “Reduviid.”	
„	235,	„ 21	„ „	„ “Mathow,”	read “Mathon.”

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A MONTHLY JOURNAL OF

NATURAL HISTORY FOR THE NORTH OF ENGLAND.

EDITED BY

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MUSEUM, HULL; TECHNICAL COLLEGE, HUDDERSFIELD;

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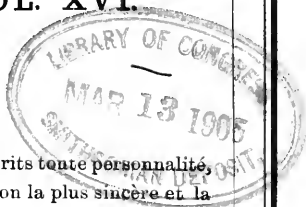
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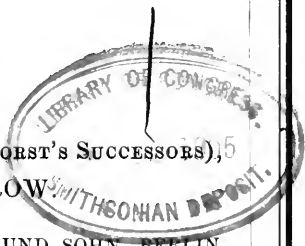
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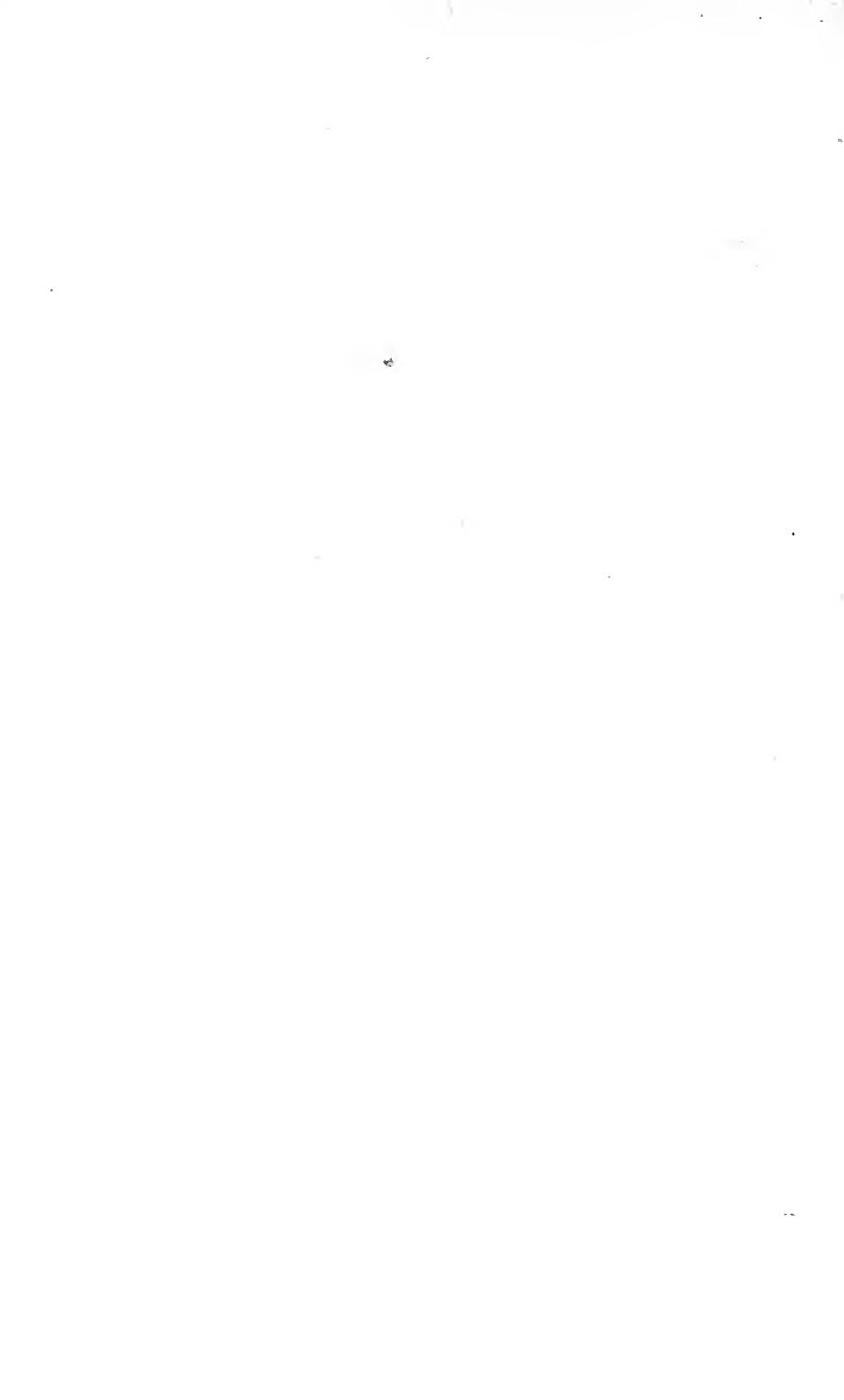
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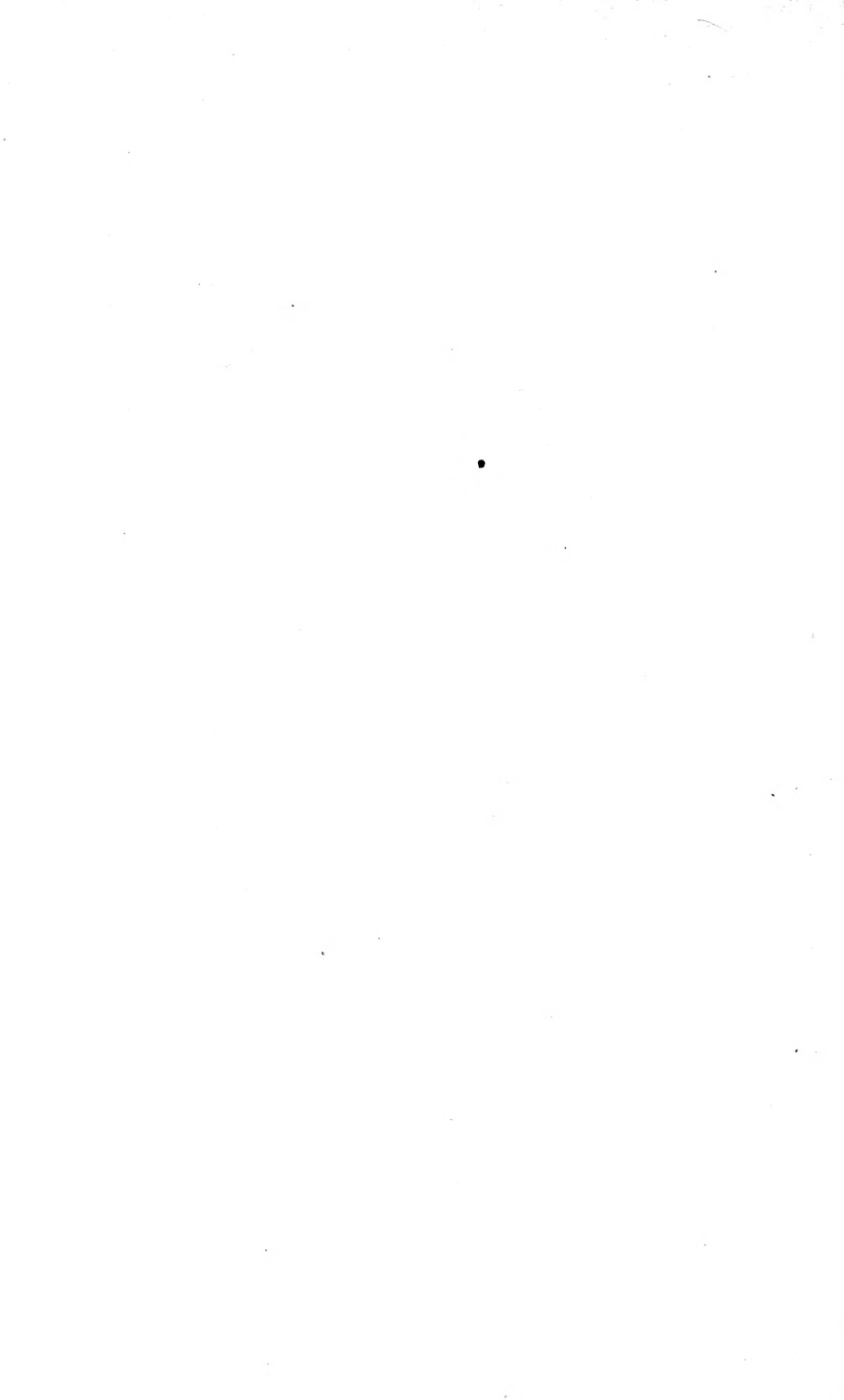
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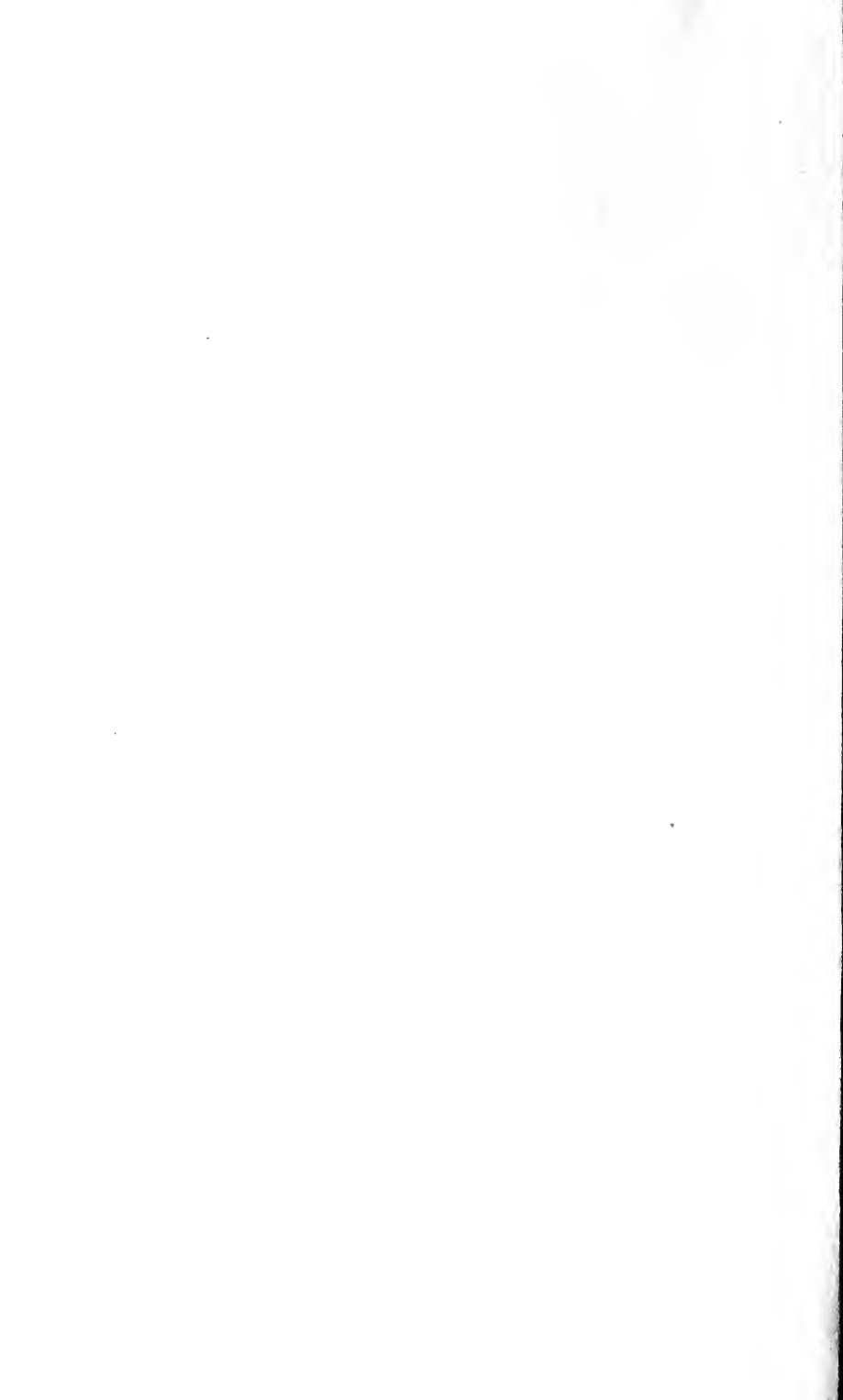
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